



सत्यमेव जयते

**R E P O R T**  
OF THE  
**INDIAN TARIFF BOARD**  
ON THE CONTINUANCE OF PROTECTION TO THE  
PLYWOOD AND TEA CHESTS INDUSTRY

**BOMBAY**  
**1950**

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GOVERNMENT OF INDIA  
MINISTRY OF COMMERCE

*New Delhi, the 5th August 1950.*

RESOLUTION  
(Tariffs)

No. 28(3) T.B./50.- The Tariff Board have investigated the claim of the indigenous plywood and tea chests industry for the continuance of protection.

2. Their recommendations are as follows:-

- (1) Apart from Gurjan, the entire imports of which from the Andamans cannot be made available to it, the industry can suitably use other species of timbers in the manufacture of plywood, provided that such timbers are properly processed.
- (2) In order to assist the industry in this respect, the Forest Research Institute, Dehra Dun, should undertake research on different species of timber available within the country, the costs of such research being met out of the cess which the Board have proposed.
- (3) The species of timber suitable for the plywood industry should be earmarked for it, and steps should be taken to ensure that such species of timber are not used by inefficient factories.
- (4) In formulating their forest policies, the State Governments should take into consideration the desirability of promoting the development of the indigenous plywood and tea chest industry.

- (5) In view of the speculative tendency of the price of casein, which depends upon the indigenous production of butter, the export of indigenous casein should continue to be prohibited, and licences for import of foreign casein should be issued to plywood and tea chest manufacturers for their own consumption.
- (6) In view of the fact that the demand for casein by the plywood industry is falling, the indigenous industry should be able to regulate the prices of imported casein by placing collective orders.
- (7) Since it should be possible to use other adhesives such as protein glues, vegetable glues, resinous glues, etc., in the manufacture of tea chests, the Forest Research Institute, Dehra Dun, should undertake research into various types of glues for the benefit of the indigenous industry, the expenses incurred by the Institute being met out of the proceeds of the cess recommended.
- (8) Collectors of Customs should maintain separate records of tea chests imported into the country not only in terms of value but also in terms of numbers.
- (9) Quotas for imports should be fixed after taking into account the capacity of the indigenous industry to meet the demand of the country for tea chests.
- (10) The Chairman of the Central Tea Board should obtain monthly returns from the tea gardens indicating their stocks of indigenous and imported tea chests at the end of each month. The tea gardens should also furnish an estimate of their requirements of tea chests for six monthly periods.

- (11) If imports are permitted from Finland, it should be stipulated that the supplies should be made direct from Finland, as direct supply would be cheaper than supply through the tea chests trade of London.
- (12) The existing protective duty of 30% *ad valorem* on imports should continue for a period of 3 years from April 1, 1950.
- (13) The tea industry should bring to the notice of the Directorate General of Industries and Supplies such specific defects in the tea chests supplied as may be noticed by them, to enable the latter to institute an enquiry and take such action as may be deemed necessary.
- (14) In order to maintain the quality of indigenous chests the Directorate General of Industries and Supplies should take early steps to collect contributions from the manufacturers and set up regional testing laboratories at Calcutta, Assam and South India.
- (15) Immediate steps should be taken to collect on the basis of actual sales a statutory cess of 8 annas per 100 sq. ft. of plywood manufactured in India. The proceeds of the cess should be partly utilised for conducting research at the Forest Research Institute, Dehra Dun, and partly for the development of the industry on healthy lines.
- (16) In view of the importance of the export of tea in national economy, and in order to reconcile the conflicting interests of the indigenous tea chests industry and the tea industry, approved factories should form themselves into an association, and a tea chest committee should be formed consisting of three representatives each from the approved

factories association and the Indian Tea Association, presided over by a representative of the Directorate General of Industries and Supplies.

- (17) All the units should maintain and forward to the Board periodical statements showing detailed cost data and statistics of production, sales and stocks.

3. As regards the protective duty, this has already been extended up to December 31, 1951 under the Indian Tariff (Second Amendment) Act, 1950.

4. As regards the other recommendations, recommendations (1), (6), (10), (13), (14), (16) and (17) concern the industries themselves whose attention is drawn to them. Recommendation (4) concerns State Governments, whose attention will be drawn to it. Government will take steps to implement recommendations (2), (3), (5), (7), (8), (9) and (11) as far as possible.

5. As regards the levy of a cess, having considered all aspects of the matter, Government have come to the conclusion that it would be best for the industry to make voluntary contributions to meet the expenditure on research and the development of this industry and methods to secure such contributions will be explored.

6. As regards recommendation (16) about the formation of a Tea Chest Committee it is considered unnecessary to create another committee concerned with Tea, there being already the Central Tea Board and the Tea Chest Development Committee. As and when necessary, however, special meetings will be called of the interests concerned together with representatives of the appropriate Ministries. Steps will also be taken so to reorganise the Tea Chest Development Committee as to include representatives of the Ministries of Agriculture and Commerce and, if necessary, also of the Central Tea Board.

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## REPORT ON THE CONTINUANCE OF PROTECTION OR ASSISTANCE TO THE PLYWOOD AND TEA CHESTS INDUSTRY

1. (a) In their letter No. 1383/26, dated 15th March, 1949, Introduction Travancore Plywood Industries invited the Board's attention to the serious problems facing the industry, pointing out that the protection granted to the industry had been rendered largely ineffective owing to the operation of certain adverse factors. It was stated that there was increasing difficulty in obtaining the requisite quantity of timber at a reasonable price; and that the price of casein had increased from Rs. 1,800 per ton ruling at the time of the Board's inquiry in 1947 to Rs. 5,000 per ton and further that, even at this increased price, casein was practically unobtainable. The firm also pointed out that a sufficient quantity of petrol was not available to meet the industry's normal requirements and that even though the railway transport position had improved, the indigenous manufacturers could not obtain adequate wagon-space for transport of their finished products to distant markets, such as Delhi and Calcutta. The main complaint, however, was regarding the import licensing policy pursued by Government. In this connection, it was stated that, while the normal requirements of the tea gardens were about 3.85 million tea chests per annum and the indigenous production was about 2.75 million chests, the tea gardens persisted in misrepresenting to Government that their annual requirements of tea chests were 5.5 millions. In view of these difficulties, it was suggested that the Board should take suitable measures to safeguard the interests of the industry. A similar representation was also received from the Indigenous Plywood Manufacturers' Association, Calcutta *vide* their letter, dated 23rd March, 1949. Since, however,

the protection granted to the industry in the Ministry of Commerce Resolution No. 218-T/B(9)/47, dated 12th April, 1948, was due to expire on 31st March, 1950, and the Board, therefore, had to examine the question of continuance of protection to the industry beyond that date; it was decided to examine these representations while reviewing the case of the industry.

(b) In paragraph 2 of the Government of India, Ministry of Commerce, Resolution No. 30-T(1)/48, dated 6th August, 1948 the following additional function has been assigned to the Board:-

"The Tariff Board is also hereby authorised to maintain a continuous watch over the progress of protected industries by conducting enquiries, as and when necessary, on the effect of the protective duties or other means of assistance granted, and advise Government regarding the necessity or otherwise of modifying the protection or assistance granted. The Board should also keep a careful watch to ensure that conditions attached to the grant or protection were fully implemented and that the protected industries were being run efficiently."

In exercise of this function, the Board undertook the present inquiry in order to determine whether or not the protection enjoyed by the industry should be continued. At an early stage of the inquiry, however, it was found that due to its being preoccupied with certain other urgent cases, the inquiry into the plywood industry could not be completed before 31st March, 1950. The Board, therefore, forwarded an interim recommendation that the existing duty should be continued for a short period, pending the completion of the inquiry and presentation of the Board's Report. Government accepted the suggestion and, under the Indian Tariff (Second Amendment) Act, 1950, extended the period of protection up to 31st December, 1951.

2. (1) The claim of the plywood and tea chest industry for protection or assistance was first remitted to a Tariff Board for investigation in 1927. After due investigation, the Board came to the conclusion that only tea chests and not commercial plywood, required protection. Having regard to the interest of the tea industry, the Board was not in favour of protecting the industry by raising the customs duty as it considered that the imposition of any additional burden on the tea industry would not be desirable. The Board also did not accept the proposal for a bounty to the tea chest industry as it felt that such a bounty would impose an indeterminate liability on the public revenues and would also involve administrative difficulties. It, therefore, devised a scheme of protection which would avoid any additional burden being imposed on the consuming interests. The recommendations of the Board were:

(a) that the import duty on all plywood articles other than tea chests and rubber boxes should remain unchanged at 15 per cent. *ad valorem*; and that the import duty on plywood panels and battens of tea chests and rubber boxes should be abolished;

(b) that a specific export duty should be imposed on tea chests other than those of which the plywood panels were of Indian manufacture;

(c) that the export duty should be at the rate of 6½ annas per 100 lbs. of tea exported in chests of which the plywood panels were not of Indian manufacture;

(d) that out of the proceeds of the export duty, a sum of 4½ annas per 100 lbs. should be made over to the Indian Tea Cess Committee and that the cess leviable under the Indian Tea Cess Act should be reduced by 3 annas per 100 lbs. of tea; and

(e) that the period of protection should be five years.

The Government of India, while accepting the finding of the Board that the manufacture of plywood tea chests alone required protection, came to the conclusion that the scheme of protection through an export duty as proposed by the Board would lead to undesirable complications. They, therefore, decided to impose a protective duty of 30 per cent. on all forms of plywood and on the battens and corner pieces of plywood chests and also to abolish the drawback then admissible under the Sea Customs Act on re-export. However, no action could be taken on the recommendations of the Board as the Bill introduced in the Central Legislative Assembly to give effect to these recommendations could not be passed mainly due to the opposition of the tea industry.

(ii) The claim of the industry to protection or assistance was again referred to the interim Tariff Board by the Government of India in their Resolution No. 218-T(55)/45, dated 4th May, 1946 and supplementary Resolution of the same number, dated 25th January, 1947. The Board, after examining the case, submitted its Report to Government in June, 1947 with the following recommendations:

"(1) The present revenue duty of 30 per cent. *ad valorem* should be converted into a protective duty of 25 per cent. *ad valorem* on all varieties of imported plywood and imported battens and remain in force till 31st March, 1950.

(2) If the price of imported tea chest panels for a tea chest measuring 19" x 19" x 24" falls below Rs. 4-8-0 per chest, Section 4 of the Indian Tariff Act should be invoked and the duty increased so as to bring the landed cost of the imported panels of the above mentioned size to Rs. 4-8-0.

(3) The importation of plywood suitable for tea chests should be rigidly controlled during the period of protection and licences should be given only to the extent of the requirements of tea chests which cannot be met by the Indian industry.

(4) It is essential to conserve the species of timber suitable for the plywood industry and rationalise its use. With this view, the Provincial Governments concerned should as far as possible earmark the species of timber suitable for plywood specifically for the industry and make it available at a reasonable cost to the plywood factories in their regions and in the adjoining areas. Steps should also be taken to ensure that these species of timber are not used by inefficient factories resulting in wastage and loss.

(5) Proper specifications should be laid down for plywood panels for tea chests as also for other categories of commercial plywood. Government should constitute an *ad hoc* Committee for this purpose.

(6) Under the control of the Forest Research Institute, Dehra Dun, an inspecting agency should be established for testing the quality of Indian plywood and certifying that it satisfies the prescribed specifications.

(7) A statutory cess of 8 annas per 100 sq. ft. of plywood manufactured in India should be levied on the basis of actual sales. The proceeds of this cess should be handed over to the Forest Research Institute for carrying on research in the manufacture of plywood. A panel should be constituted to act as the liaison between the Institute and the industry in the plywood research activities of the Institute.

(8) The Indian manufacturers of plywood should send their technical men for training and periodical refresher course to the Forest Research Institute.

(9) The Central Government should give every possible facility and assistance for the import of machinery for the manufacture of plywood and the customs duty paid on such imported machinery should be refunded.

(10) The export of casein from the country should be totally prohibited."

The Government of India announced their decision on the Report in the Ministry of Commerce Resolution No. 218-T/B(9)/47, dated 12th April, 1948. Government accepted recommendations (1) and (2) but decided, for revenue considerations, to retain the then existing duty and convert the same into an equivalent protective duty. Government also accepted recommendations (3), (4) and (10) and stated that steps were being taken to implement them. With regard to recommendation (5), it was stated that the Ministry of Industry and Supply had already taken action in the matter. Recommendations (6), (7) and (8) were stated to be under consideration. With regard to recommendation (9), it was stated that Government would be prepared to give assistance for importing machinery for the manufacture of plywood but that the question of refund of customs duty paid on such imported machinery was under consideration.

3.(a) *Protective duty*... Although the interim Tariff Board recommended a protective duty of 25 per cent. *ad valorem* on all varieties of imported plywood and battens, Government, for revenue considerations, converted the then existing revenue duty of 30 per cent. *ad valorem* into an equivalent protective duty. It was also stipulated that "if the price of imported tea chest panels for a tea chest measuring 19" x 19" x 24" falls below Rs. 4-8-0 per chest, Section 4 of the Indian Tariff Act should be invoked and the duty increased so as to bring the landed cost of the imported panels of the above mentioned size to Rs. 4-8-0." The industry has represented to us that this recommendation has not been implemented by Government as, even when the import price of Japanese shooks was as low as Rs. 4-4-0 per set of birch quality and Rs. 3-4-0 per set of beach quality, Section 4(1) of the Tariff Act was not invoked by Government. During the public inquiry, however, it was revealed that the industry had not drawn the attention of Government to the fall in the c.i.f. price of imported

panels nor had it made any claim for an enhancement of the duty under Section 4(1) of the Tariff Act. The explanation tendered by the industry was that, owing to large scale imports in 1949, there was practically no demand for its products and that, therefore, it did not consider it worthwhile taking up the matter with the Government of India.

(b) *Quantitative restriction on imports*--It has been represented to us by the industry that although Government had accepted the Board's recommendation that the imports of plywood suitable for tea chests should be licensed only to the extent of the requirements of tea chests which could not be met by the Indian industry, this recommendation has not been fully implemented by Government. In this connection, it has been stated that, in 1947, when the question of protection to the plywood industry was under investigation by the Board, import quotas for tea chests were substantially reduced and the licences granted during that year amounted to about 1.6 million chests. This gave a fillip to the industry and there was a fairly good demand that year, particularly in the latter half. Subsequently, however, as a result of strong representations from the Indian Tea Association and other interests, licences for 2 million chests were issued by Government for the first half of 1948 alone. A further quota for 1.6 million chests was issued for the second half of 1948. Besides, imports to the extent of 0.15 million chests were also sanctioned by Government against the import quota for battens. Thus, the total import quota for 1948 worked out to 3.75 million chests. As, however, the licences issued against the above quotas were based not on quantitative restrictions, but on monetary ceilings, it has been represented that, owing to a fall in the import prices, a larger quantity than 3.75 million chests was actually imported against the above licences. In consequence of the large imports in 1948, the demand for the indigenous product was seriously reduced so much so that the Indian section of the industry could practically do no business in 1949. During the year 1949,

however, licences were issued only to the extent of about 0.5 million chests.

(c) *Conservation of timber and supply of timber at fair prices.*—The replies received by us from the Conservators of Forests, Assam, Bengal, Uttar Pradesh, Madhya Pradesh and the Punjab indicate that the previous Tariff Board's recommendation that the Provincial Governments concerned should, as far as possible, earmark certain special types of timber suitable for plywood manufacture, is being implemented. With the partition of the country, however, difficulties were being experienced by the manufacturers in Calcutta as their supplies of timber from the areas which are now in Pakistan have been cut off. We have been informed by the representatives of the D.G.I. & S. and the Ministry of Agriculture that Calcutta factories would be supplied with 12,000 tons of timber from the Andamans to meet their requirements. As regards the supply of timber at an economic price, we have been informed by the industry that various manufacturers had been purchasing timber at a price of about Rs. 6-0-0 per c. ft., which is double the price adopted by the previous Board for working out the fair selling price of the indigenous tea chest. The representative of the Ministry of Agriculture has informed us that the ceiling price for the Andamans timber would be Rs. 4-0-0 per c. ft.

(d) *Ban on the export of casein.*—As the indigenous production of casein is not sufficient to meet the demand of the tea chest manufacturers, the previous Board had recommended that the export of casein should be totally banned. We have been informed that the export of casein still continues to be in the prohibited list.

(e) *Specifications for plywood.*—As recommended by the Board in 1947, the Indian Standards Institution, Delhi has evolved standard specifications both for tea chests and commercial plywood. We are told that the specifications laid down by the Indian Standards Institution are much

more rigid than those obtaining in other countries (*vide* Appendix I). The industry has also given an assurance that it would take necessary steps to ensure that its products conform to the specifications.

(f) *Inspectorate.*—We have been informed that Regional Inspectorates under the D.G.I. & S. have been recently set up at Calcutta, Margherita and South India and that six Inspectors have already been appointed to test the quality of the indigenous product with reference to the prescribed specifications.

(g) *Cess on plywood.*—The previous Board had recommended that a statutory cess of 8 annas per 100 sq. ft. of plywood manufactured in India should be levied on the basis of actual sales and that the proceeds of this cess should be handed over to the Forest Research Institute, Dehra Dun. The D.G.I. & S. has informed us that, pending the final decision on the question whether the Inspectorate should be under the control of the D.G.I. & S. or the Forest Research Institute, the levy of the statutory cess could not be taken up. Now that the question has been finalised, we are informed that early steps will be taken to give effect to the recommendation of the Board in this respect.

4.(a) On 26th April, 1949 questionnaires were issued to Method of known manufacturers, principal importers and inquiry. consumers of plywood and tea chests as well as to their Associations. A list of those to whom the questionnaires were issued and of those who replied thereto or submitted memoranda, is given in Appendix II. The Board issued a press communique on 6th May, 1949 and another on 2nd June, 1949 inviting associations, firms and persons interested in the industry as producers, consumers or importers, or depending on it for their requirements, to forward their views to the Board. The Conservators of Forests were requested to intimate to the Board what steps had been taken by the Provincial (now State) Governments to

conserve the different species of timber suitable for the manufacture of plywood as recommended by the Board in 1947. The Principal, Forest Research Institute and Colleges, Dehra Dun was addressed to apprise the Board of the results of the experiments conducted by the Institute on different species of timber considered suitable for plywood manufacture. Information with regard to import control policy of Government was called for from the Chief Controller of Imports, New Delhi. And the Collectors of Customs were requested to furnish data regarding the c.i.f. prices and landed costs of plywood and tea chests imported through their respective ports.

(b) The following three factories were selected by the Board for cost investigation:

- (1) Standard Furniture Co., Ltd., Kallai;
- (2) The Assam Railways and Trading Co., Ltd.,  
Margherita; and
- (3) The Bengal Bobbin and Plywood Co., Ltd.,  
Calcutta.

The accounts of these factories were examined by Mr. R. Sundaram, Cost Accounts Officer attached to the Board, with the assistance of Mr. R. N. Kapur, the Board's Technical Adviser. Varat Plywood Factory, Calcutta, also furnished their cost data.

(c) A statement showing the dates of visits to the plywood and tea chests factories by the President, Members and Officers of the Board will be found in Appendix III. During his visit to Calicut in January, 1950 Dr. B. V. Narayanaswamy Naidu, Member of the Board met representatives of the South Indian Plywood Manufacturers' Association on 31st January and discussed with them the various problems relating to the industry. On 10th February, 1950, Dr. Naidu held a discussion with the representatives of Indian Plywood Manufacturing Co. Ltd., Bombay when the general aspects of

the industry were surveyed. The public inquiry was held in Bombay from 21st to 23rd February, 1950. A list of persons who attended the inquiry and gave evidence before the Board is given in Appendix IV. Subsequently, during his visit to Calcutta in the first week of March, Mr. G. L. Mehta, President of the Board, held a discussion with Mr. S. K. Sinha, Chairman, Central Tea Board and Mr. L. B. Green, Tea Controller for India, who had been unable to attend the public inquiry, questions relating to the domestic demand, production, quality, stocks of tea chests with the gardens, import control policy of Government and the establishment of a marketing organisation for the indigenous industry. On 8th March, 1950, Mr. G. L. Mehta and Dr. B. V. Narayanaswamy Naidu had a discussion in the Board's office with Mr. Kothari, representative of the United Planters' Association, South India, who also had been unable to attend the public inquiry.

5. The principal raw materials required for the manufacture of plywood are timber and adhesives. The position of these raw materials is briefly described below:-

(a) *Timber.*— The previous Tariff Board (1947) had recommended that it was essential to conserve the species of timber suitable for the plywood industry and rationalise its use. With this object, the Board had suggested that "the Provincial Government concerned should earmark species of timber suitable for plywood specifically for the industry and make it available at a reasonable cost to the plywood factories in their respective regions and in the adjoining areas." It had been further recommended that steps should be taken to ensure that these species of timber are not used by inefficient factories resulting in wastage and loss. The industry has now represented to us that very little has been done by the Provincial Governments to implement these recommendations. We will now examine the present position regarding the availability of suitable timber for the industry in different parts of the country. For the purpose

of discussion, the indigenous factories may be conveniently grouped into four zones: (i) Bengal Zone, (ii) Assam Zone, (iii) South India Zone, and (iv) Bombay Zone.

(i) *Bengal Zone.*— The plywood factories situated in North Bengal are obtaining their timber requirements from nearby forests and from forests in Assam. As there are no forests in South Bengal containing plywood species of timber. the factories in Calcutta have been obtaining their timber supplies from those territories in Assam and East Bengal which are now in Pakistan. With the declaration of Pakistan as a foreign territory in March 1948, these factories lost their sources of timber supply and the problem of procuring timber has since then, become increasingly difficult. We have been informed by the representatives of the Ministries of Industry and Supply and Agriculture that efforts are being made by the Government of India to meet the timber requirements of factories in Calcutta from the Andamans. According to the specifications laid down by the Indian Standards Institution for tea chests, the following six species grow abundantly in the Andamans: Kadam, Chaplash, Gurjun, White Chuglam, Lambapatti and Badam. Of these six species, the Ministry of Agriculture has earmarked four species for the plywood manufacturers, and the other two for the match industry as the latter is also considered to be an important consumer of such timbers. Government expect to extract about 60,000 tons of timber in the Andamans of which 12,000 tons have been earmarked for the plywood industry in Calcutta. The total requirements of the Calcutta factories are estimated to be about 25,000 tons; and we have been informed that an attempt would be made by Government to procure the balance either from the Andamans or from Burma. The manufacturers in Calcutta contended that of the six species of plywood timber, Gurjun was the most suitable and claimed that the full quantity of Gurjun available in the Andamans should be earmarked for them. They also added that as the resultant wastage in the use of Gurjun is less than

that of other species, they would be prepared to pay for Gurjun 6 to 10 per cent. more than the price fixed for the other species. This request of the Calcutta section of the industry was supported by the representative of the Indian Tea Association. The representative of the Ministry of Agriculture, who was present at the inquiry, estimated that about 15,000 tons of Gurjun timber would be available from the Andamans; and that out of this, his Ministry would be able to allot to the plywood industry not more than three to four thousand tons. He further added that Gurjun timber had also other uses and that there was a large demand for this timber from the building trade and from the railways. Gurjun has also an export market in U.S.A. and Germany but the Ministry of Agriculture in the interest of the indigenous plywood industry has resisted the temptation of exporting timber to these countries for the purpose of earning dollars. Having regard to the other consuming industries, the Deputy Inspector-General of Forests has suggested that the plywood and tea chest industry should agree to obtain three to four thousand tons of their requirements in Gurjun and the balance in other species. We consider that the proposal made by the Ministry of Agriculture is reasonable and are unable to accept the claim of the industry that the entire quantity of Gurjun timber from the Andamans should be made available to them. During the discussion of this matter at the public inquiry, the representatives of the industry agreed that the other species of timber which have been recommended by the Indian Standards Institution would prove to be equally suitable for the manufacture of plywood provided that such timbers were properly processed. As a matter of fact, the manufacturers in Southern India are using Vellapiney species which is considered by them to be quite suitable for plywood. This timber, we understand, gives an attractive colour and finish to the tea chests. As there are reasonable prospects of a large variety of the different species of timber available in the country being found suitable for the manufacture of plywood, we recommend that research on

different species of timber should be undertaken by the Forest Research Institute, Dehra Dun, and that the expenses of such researches should be met out of the proceeds of the cess which we propose in paragraph 17(b) below.

(ii) *Assam Zone.*— The factories in Assam are in a very advantageous position inasmuch as the forests from which they extract timber are near at hand. In the past, both the factories in that zone, namely, Assam Railways and Trading Co. Ltd., and Assam Saw Mills and Timber Co. Ltd., used to be allotted on long lease certain forest areas by the Assam Government. In the case of the former firm, the lease last granted has already expired, and at present, the Government of Assam have been issuing permits to the firm on a short-term basis. The firm is not now permitted as before to select and fell such species in the forest area as are required by them for the manufacture of plywood. In the case of the other factory, however, the last lease made by the Government of Assam in its favour has not yet expired. These factories have to pay a fixed royalty to the Assam Government which, we have been informed, are to be increased at an early date from as. -/5/- to as. -/7/- per c.ft. The principal species utilised by these two factories are Hollock and Hollong. We have been also informed by the representatives of these factories that the Assam Government have laid down a schedule of prices for the sale of timber and that, though the plywood manufacturers had been until recently allowed a concessional price, they have now to pay the full schedule rates.

(iii) *South India Zone.*— Although suitable species of timber required for the manufacture of plywood are available in abundance in the Madras forests, the plywood factories in this region are not in such advantageous position as those in Assam. We have been informed that until about three years back, the Government of Madras used to allot selected trees to the plywood manufacturers for the production of plywood and tea chests. This system has since been abandoned and the

Madras Government have adopted a policy of auctioning off forest areas irrespective of the use to which the timbers extracted from the forests are to be put to. This is stated to be a handicap to the industry, inasmuch as the manufacturers have to bid against general timber merchants who are prepared to pay higher prices as they can utilise all the timbers contained in the forests by sawing them, whereas the plywood and tea chest manufacturers can utilise only such selected species as are suitable for plywood manufacture. The manufacturers have, therefore, pleaded that the Government of Madras should be asked to segregate in their auction sales such trees as are required for the manufacture of plywood and allot them to the plywood industry at a reasonable price.

(iv) *Bombay Zone.*— We have been told that the factories in this zone are faced with more or less the same difficulties in the matter of selection of trees as those in Madras. The manufacturers of this zone have suggested that the Government of Bombay should be asked to make the plywood logs of timber available to them at the forest heads.

In view of the position of tea export as a dollar earner and the value of plywood tea chests as an accessory for the tea export trade, we consider the development of the indigenous plywood and tea chest industry a matter of national importance. The industry should, therefore, be given all reasonable assistance to expand its production. It is also necessary to ensure that suitable species of timber in the forests of each State should be properly and economically exploited. We, therefore, reiterate the recommendations of the previous Tariff Board (1947) that the species of timber suitable for the plywood industry should be earmarked for it and that steps should be taken to ensure that such species of timber are not used by inefficient factories resulting in wastage and loss. We also recommend that, in formulating their forest policies, the State Governments should take into consideration the desirability of promoting the development of the indigenous plywood and tea chest industry.

(b) *Casein.*—Casein, which is a by-product of butter and ghee, is the principal adhesive at present used by the indigenous plywood and tea chest industry. The total requirement of the industry for casein was estimated at 1,500 tons per annum for the production of 55 to 60 million sq.ft. of plywood. Since the indigenous production of casein, which was estimated at 1,000 tons per annum, is not sufficient to meet the entire requirements of the tea chest industry, it has to be supplemented by imports. We were informed during the public inquiry, that roughly about one pound of casein is required for the manufacture of one tea chest of standard size 19" x 19" x 24". The incidence of the cost of casein on the total cost of production of tea chest is, therefore, appreciable. It was stated that during the last two or three years the price of casein in the Indian markets had been subject to wide fluctuations. We were informed that such fluctuations were not peculiar to India alone but that the price of casein in foreign markets also had such wide movements. For instance, in Argentine, the price rose from about 300 pisas to 5,000 pisas per ton in the course of one year, while the c.i.f. price of Uruguayan casein declined from about Rs. 1,800 per ton during the pre-devaluation period to Rs. 1,100 per ton after devaluation. During the last few years, the price of casein in the Indian markets fluctuated between Rs. 1,200 and Rs. 7,000 per ton. Although we have not examined the cost of production of indigenous casein, we are of the opinion that the increase in the price of casein to Rs. 7,000 per ton cannot be warranted by such cost. We are, therefore, inclined to believe that the price of casein is highly speculative. The representatives of the industry stated that the speculative tendency of casein price depended upon the following factors:—

- (i) the indigenous production of butter;
- (ii) the demand of the plywood industry for casein; and
- (iii) the availability of imported casein in the country.

It was also stated that the transport restrictions imposed by the State Governments on the movement of butter from one State to another was also, to some extent, a contributory factor. In order to hold the price of casein under check, the following suggestions were made by the industry:-

(i) *Production of more butter.*— The manufacturers requested that, in order to increase the production of indigenous casein, Government should allow the dairy industry to use a certain quantity of milk for the production of butter and, consequently, of casein also as a by-product. In view of the prevailing food situation in the country, we are unable to support this proposal of the industry.

(ii) *Ban on export of indigenous casein.*— As already stated above, the indigenous production is not enough to meet the full requirement of the tea chest industry for casein. We, therefore, recommend that the export of indigenous casein should continue to be in the prohibitive list.

(iii) *Imports of foreign casein.*— The manufacturers contended that if imports of foreign casein were freely allowed into the country, it would have a salutary effect on the rising tendency of the casein price in the local markets. We have examined this question and have noticed that whenever imports of foreign casein arrived into the country, the price of casein declined. Since the indigenous production of casein can meet only a portion of the total demand in the country, we recommend that licences for importation of foreign casein should be issued to plywood and tea chest manufacturers for their own consumption. During the course of the inquiry, we were given to understand that the present international price of casein is higher than that in India and that it would not be in the interest of the indigenous industry to import casein at present. We were also informed that the use of casein for plywood manufacture in foreign countries was on the decline, as there were better substitutes available in sufficient quantities. The latest c.i.f. price quotation for casein was stated to be about Rs. 2,100 per ton.

We do not consider that this price would prevail for sufficiently long time. The view was expressed by the manufacturers that the price of casein was likely to be stabilised in the next few months. We, therefore, suggest that the indigenous manufacturers should study the market conditions abroad and import casein when the price comes down to a reasonable level. In view of the fact that the demand for casein by the plywood industry is going down, it should be possible for the indigenous manufacturers to regulate the prices of imported casein by placing their orders jointly. We, therefore, recommend that all the plywood manufacturers should form a single association as recommended in paragraph 17(c) below and place a bulk order for casein on behalf of all the members of such an association.

(iv) *Reduction in the customs duty on imported casein.*—The manufacturers argued that as the present duty of 36 per cent. on casein affected them adversely by increasing the price of casein, the duty should either be abolished or appreciably reduced. We consider that the measures recommended above would effectively arrest the soaring tendency of the price of casein in the local markets. We do not consider that any further relief by way of reduction in the import duty is called for. We are, therefore, unable to make any recommendations in this respect. Opinions were expressed by the representatives of manufacturers present at the inquiry that it should be possible to use other adhesives such as protein glues, vegetable glues, resinous glues, etc., in the manufacture of tea chests. Some of the plywood factories in South India are stated to have experimented with protein glue adhesives, which produced satisfactory results in the case of certain factories, while in the case of others, the results were disappointing. It is, therefore, necessary that further research should be undertaken into various types of glues which could be used advantageously in the manufacture of plywood tea chests. We, therefore, recommend that the Forest Research Institute, Dehra Dun, should undertake research into various types of glues for the benefit of the

indigenous industry. The expenses incurred by the Institute for such research should be met out of the proceeds of the cess which we recommend in paragraph 17(b) below.

6. The interim Tariff Board in 1947 estimated the Domestic annual demand for tea chests of the standard size demand. 19" x 19" x 24" at over 5½ million chests requiring approximately 100 million sq. ft. of plywood of 3 ply 3/16". The annual demand for plywood of other categories, in terms of 3 ply 4 mm., was estimated at about 50 million sq. ft. In the written memoranda as well as in the replies to our questionnaire, we have received different estimates of the tea industry's annual requirements of tea chests. The Chairman, Central Tea Board, and the Tea Controller for India, have placed their estimates of the annual requirements of the tea industry for chests at 5.5 million and 5.4 million respectively. The Indian Tea Association has also estimated the demand at 5.5 million chests. The indigenous manufacturers have, however, contested these estimates. One of the manufacturers has stated in his memorandum that "whereas the normal requirements of tea gardens were about 3.65 million chests and indigenous production about 2.75 million chests, the tea gardens persisted in misrepresenting their annual chests requirements at 5.5 million." Similarly, one of the associations of the indigenous tea chest manufacturers in South India has suggested that the assumption of 5.5 million chests as the requirements of the tea industry every season is "demonstrably wrong and cannot be sustained". The estimates furnished by the indigenous manufacturers vary from 3.65 million to 4.12 million chests. These estimates were fully discussed by us during the public inquiry and later, with the Chairman, Central Tea Board, and the Tea Controller for India, by the President of the Board during his visit to Calcutta in the first week of March, 1950. At the public inquiry, the tea chest manufacturers contended that, in order to arrive at a reliable estimate of the annual demand for tea chests in the country, it was necessary to

know the proportions of various grades of tea produced in the country. It was stated that a standard tea chest of 19" x 19" x 24" could contain varying quantities of tea, from 85 lbs. to 135 lbs., depending upon the grade of the tea packed. As a matter of fact, the three principal grades of tea, namely, leaf, fannings and dust are packed respectively in chests of 19" x 19" x 24", 18" x 18" x 20" and 16" x 16" x 18" size. The production of these 3 grades in 1948 was stated to be about 73 per cent. in the case of leaf including broken, 20 per cent. in the case of fannings and 7 per cent. in the case of dust. Since, however, these proportions tend to vary from season to season, it was not considered desirable to base the estimate of the future demand on these proportions. The other factor which the indigenous manufacturers requested us to consider was the quantity of tea meant for export. In this connection, the representatives of the tea industry observed that, as the tea left the gardens, it was not possible to say whether it was meant for export or for internal consumption and that all the tea had to be packed by the gardens in these chests, irrespective of whether they would be ultimately consumed in the country or exported. Such being the position, it was agreed that for purposes of estimating the domestic demand, the entire production of tea in the country should be taken into consideration. It was not possible at the time of the inquiry to estimate the tea production in the country during 1950. Consequently, the production in 1949 which was stated to be about 580 million lbs., was adopted as the basis for building up the estimated demand for chests. The indigenous manufacturers estimated that, in terms of the standard size chest, the domestic demand could be placed at 5 millions. The representative of the tea industry agreed to this figure. Both the Chairman and the Tea Controller were of the opinion that, on an average, 106 lbs. of tea could be packed in a standard size chest. They also stated that, while computing the overall demand for chests required for packing tea, it was necessary to make certain allowances for wastage and

breakages. On this basis, they held that it would not be correct to put the demand of tea chests at 5 millions and suggested that 5.5 million chests should be taken as the correct estimate of the tea industry's requirements. The representative of the United Planters' Association, who gave evidence before the Board subsequent to the public inquiry, was of the opinion that the demand for chests by the tea gardens both in South and North India would be about 5.75 million chests. He also added that gardens in the South produced about 20 per cent. of the total tea production in India and had been packing, on an average, 85 to 87 lbs. of tea in a standard size chest. After careful examination of the evidence placed before us, we have come to the conclusion that the annual domestic demand for tea chests during the next two or three years would be between 5 to 5.5 million chests of the standard size 19" x 19" x 24".

7.(a) *Capacity...* In their joint memorandum submitted to the Board, the West Coast Industrialists' Association and the South Indian Plywood Manufacturers' Association have estimated the annual rated capacity of the indigenous industry at 84 million sq. ft. which, they said, could easily be increased to 150 million sq. ft. At a meeting held in Calcutta on 17th March, 1949, between the Chief Controller of Imports and the representatives of the tea gardens and the tea chest industry, the capacity of the industry was estimated at 2.75 million chests. At a similar meeting held later in the office of the Central Tea Board on 17th September, 1949, however, the industry claimed that its capacity was 3.3 million chests per annum. The Chairman of the Central Tea Board has expressed the opinion that the output of panels of satisfactory quality would be somewhere between 2 and 2.2 million sets annually. In view of such divergent estimates, we tried to assess the capacity of the industry during the course of the public inquiry. The peak production attained by the industry was in 1948 when its production amounted to 53.73 million sq. ft., made

up of 45.11 million sq. ft. of plywood for tea chests and 8.62 million sq. ft. of commercial plywood. The representatives of the industry, however, argued that this figure of production could not serve as a safe guide in estimating the capacity of the industry because production in that year had suffered from a number of handicaps. The Development Officer of the D.G., I. & S. informed us that, according to the statements received by him, the capacity of the industry amounted to 140 million sq. ft. of plywood per annum; but that he considered the estimate to be on the high side and would put the capacity at 100 million sq. ft., of which 80 million sq. ft. would represent the capacity for plywood tea chests and the balance for commercial plywood. The representatives of the plywood industry, on the other hand, contended that the figure of 100 million sq.ft. was a very conservative estimate and that the industry's capacity was of the order of about 140 million sq.ft. They further stated that since 1947-48, several factories had either already put up, or had taken steps to install, improved and additional machinery which would appreciably increase the capacity of such units. They also argued that in estimating the capacity of the industry, the expansion effected by the industry now and also that which would be effected during the next year or so, should be taken into consideration. The Target Committee of the D.G., I. & S. has laid down the production targets of chests for 1950 at 3.5 million chests which may be increased to 3.8 million chests, which will require 63 million to 69 million sq.ft. of plywood. We have considered all the evidence before us and are of the opinion that the present annual rated capacity of the indigenous industry can be placed at 100 million sq.ft. both for tea chest and commercial plywood.

(b) *Production*.--At the time of the Tariff Board inquiry in 1927, the total indigenous production was about 8.2 million sq. ft. of plywood. World War II gave a strong fillip to the industry and production increased from 12 million sq. ft.

in 1938 to 50 million sq. ft. in 1944. In the following years, however, production declined to 30 million sq. ft. Figures of actual production for the last three years, as furnished to us by the D.G., I. & S. are reproduced below:-

Year	Plywood for tea chests.	Commercial plywood.	Total
	Million sq. ft.	Million sq. ft.	Million sq. ft.
1947	28.55	5.73	34.28
1948	45.11	8.62	53.73
1949	23.48	5.06	28.54

We were informed that the above figures do not include the production of factories which are working on a cottage industry basis. It would appear from the above figures that the actual production of the industry during the last three years has been far below the rated capacity. The maximum production attained by the industry was in 1948 when it amounted to 53.73 million sq. ft., while the lowest was in 1949 when the production was only 28.54 million sq. ft., representing approximately 53 per cent. of the production in 1948. The indigenous producers who were present at the inquiry stated that, although 1948 was a good year in the history of the industry from the point of view of demand, they could not produce up to the maximum capacity of each factory on account of several handicaps which they had to face. In this connection, it was pointed out that the producers had to experience considerable difficulties in transporting their requirements of timber and casein. Further, with the mounting demand of the indigenous industry for casein, the price of casein had risen to Rs. 6,000 to Rs. 7,000 per ton and, even at this price, casein was extremely difficult to obtain. The partition of the country was also responsible for lowering the indigenous production. Although the country was partitioned in August 1947, the effects of partition began to be felt in 1948 when, with the declaration of Pakistan as a foreign territory in March 1948,

supplies of timber from Pakistan to the plywood factories in Calcutta were completely cut off with the result that the factories situated in this area had to struggle hard to obtain their requirements of timber. In the case of the factories in South India, however, the difficulty of obtaining timber did not arise. They had, however, another difficulty, namely, lack of adequate supplies of petrol for transporting their timber from the forests to their factories. The cumulative effect of these adverse factors was that out of 15 factories functioning in 1948, only 3 factories could produce upto their full capacity. We were also informed that the production of 53.73 million sq. ft. of plywood related to the first eight or nine months of 1948 as, with the arrival of imported chests towards the close of the year, most of the factories had to close down either completely or partially. In 1949, production suffered a steep fall in spite of an improvement in the transport situation and the supply position of the raw materials. The industry attributed this fall in production to lack of orders for indigenous tea chests. The representatives of the industry argued that, due to heavy importation of foreign tea chests in 1949, there was practically no demand for their products, and that, consequently with the exception of the two Assam factories, all the other factories had accumulated large stocks which necessitated partial or complete closure of the factories. As already stated above, the Target Committee for plywood of the Ministry of Industry and Supply has laid down the production target for the industry for 1950 at 3.5 million chests which may be increased to 3.8 million chests. The target production is distributed as follows:-

Calcutta	...	...	...	0.7 million chests
South Zone	...	...	...	1.1 Do.
Assam	...	...	...	0.9 Do.
Rest of India	...	...	...	0.8 Do.

The representatives of the South Indian factories maintained that the production of 1.1 million chests allotted to the

South Zone could be met by a single factory. The representatives of the industry as well as the Development Officer of the Ministry of Industry and Supply and the Deputy Inspector-General of Forests of the Ministry of Agriculture were confident that the production target could be attained by the industry. With regard to commercial plywood, the Development Officer stated that the demand for it was so great that the indigenous manufacturers were not in a position to meet it. Besides, commercial plywood has also an export market in the U.K. and other European countries. Taking these factors into account, as also the estimated home demand, we consider that the plywood and tea chest industry of the country has a promising future.

8. The quality of a tea chest depends upon the quality of the indigenous product. of plywood from which it is made, which, in turn, depends upon the timber used and the treatment given to it. The principal requirements which a tea chest should fulfil are (i) that the panels should not impart any taint to the tea packed, (ii) that it should not be liable to termite or borer infection, (iii) that the panels must be strong and light so that the tea packed should not give way during transshipment, and (iv) that it must be properly dried and the adhesive used must stand the test of water resistance. Both in the written memoranda and the oral evidence tendered before us, divergent views were expressed by the indigenous manufacturers, the tea industry, the Chairman of the Central Tea Board, the Tea Controller for India and the D.G., I. & S., about the quality of the indigenous product. The Tea Controller stated that foreign buyers of Indian tea insisted upon a very high standard of packing and that complaints were received from the Ministry of Commerce, U.K., to the effect that the poor quality of tea chests supplied by India caused substantial losses of valuable tea and also necessitated extensive repairs before the chests were acceptable to the shipping companies and to traders in U.K. The Tea Controller further added that under

the 1948 Indo-Russian Food Agreement, providing for the exchange of tea for wheat, considerable expenditure had to be incurred for reconditioning of chests, while the loss of tea resulting from the inferior chests gave rise to controversy with the Russian authorities. Out of a large number of chests supplied to Russia under the 1949 contract, at least 40 per cent. were of indigenous manufacture and the classification shown on the indigenous chests by the brokers was:- good 31.5 per cent; fair 18 per cent. and weak 50.5 per cent. The Tea Controller was, however, of the opinion that the condition of indigenous chests has of late been generally better than in the last few preceding years. Some of the new brands seen lately in the docks were found to be reasonably good while others showed wood borer infection that rendered them unsuitable for the shipment of tea. According to him, the most important fault, especially in some of the inferior brands, was the quality of wood which was generally poor and somewhat brittle. The Indian Tea Association has represented that the quality of the Indian tea chest varies widely from what can be described as serviceable down to chests which are totally unserviceable. It has, however, subscribed to the view that since the last Tariff inquiry, the quality of the indigenous chest has shown some improvement. More or less similar complaints have also been received from the Central Planters' Association and the United Planters' Association, South India. The former has pointed out some further defects, namely, that the tea chests are liable to attack by weevil and that, due to the sugar content of the Indian woods, the chests are liable to deterioration while in stock with the gardens, to further deterioration *en route* and at destination. Moreover, due to the panels being weak, the tea chests were reported to have given way during transit, resulting in the tea industry sustaining heavy losses. The plywood manufacturers, on the other hand, have claimed that they have effected improvements since the last Tariff inquiry in 1947 and that the quality of chests manufactured by the approved factories at present are as good as the imported ones.

They have also maintained that the indigenous chests are superior to the Canadian, Russian and Japanese chests. The two Assam factories have contended that their products are better both in strength and quality than the imported ones. The manufacturers have suggested that the allegation of the tea industry about losses suffered by it due to the chests having given way *en route* was partly attributable to imperfect packing by the gardens themselves over which the tea chest industry had no control. The classification of indigenous chests exported overseas into good, fair and weak as given by the Tea Controller has also been disputed by the indigenous manufacturers who have pleaded that, as the classification was apparently based on the data furnished by the brokers who were also interested in imported chests, much reliance could not be placed on it; and that as soon as complaints were lodged by the foreign buyers about the quality of tea chests, such complaints were, as a rule, attributed to indigenous products without proper investigation. Moreover, the policy of the tea planters of purchasing indigenous chests through middlemen instead of directly from the manufacturers was in a large measure responsible for the high percentage of unsatisfactory chests being exported, as the middlemen generally went in for cheap and inferior varieties. A representative of the dealers who attended the inquiry stated before us that he had procured and supplied a number of indigenous tea chests and that there was not much complaint about the quality of the indigenous product. The Tea Controller agreed that damage to tea chests at destination might also be due to bad handling at the docks and other places as also to the inferior kind of fittings and linings in the chests. As regards the liability of the indigenous chests to borer attacks, we were informed by the Development Officer of the D.G., I. & S. that most of the complaints related to chests which were kept in storage where the timbers were attacked. He observed that if timber were properly treated, as stipulated in the standard specification, all chests

manufactured out of such timber would be free from the infection complained of. The tea industry requested that if it were to pack its tea in indigenous chests, then it was essential to ensure that quality chests were supplied to it as otherwise the industry would not be able to face competition from the tea industries of Ceylon, Indonesia, China and East Africa in the foreign markets, which would prove highly detrimental to the country's export trade. In view of the paramount importance to India of the export of tea at the present juncture when we have to obtain foreign exchange, it is imperative that steps should be taken to see that supplies of standard quality chests alone are made to the tea gardens. We have examined the question of quality in detail during the inquiry and have come to the conclusion that, although the quality of the Indian-made chests has improved during the last three years, there is still scope for further improvement. We believe that the industry is capable of producing chests of acceptable quality. As recommended by the previous Tariff Board, the Indian Standards Institution has already laid down standard specifications for the indigenous tea chests which have been accepted by the indigenous tea chest industry, the tea industry and the D.G., I. & S. These specifications were stated to be rigid and high. Both the D.G., I. & S. and the indigenous industry are keen on seeing that the indigenous tea chests are manufactured strictly in accordance with the specifications. Moreover, the D.G., I. & S. have already appointed six Inspectors to give technical advice to the Indian manufacturers and to ensure that the indigenous products are manufactured strictly in accordance with the specifications. With a view to further improving the quality of their products, some of the manufacturers have already imported new and modern machines which have either been installed or are in course of erection. These steps on the part of the D.G., I. & S. and the industry should result in the production of standard chests. So far as commercial plywood is concerned, we were informed by the representative

of the General Motors (India) Ltd., which consumes only indigenous plywood in the building of bus bodies, floors, seats, etc., that the quality of the plywood supplied to them by the South Indian factories had been found to be quite satisfactory. The representative of the G.I.P. Railway, however, was of a different opinion. He stated that the Railways were a poor consumer of commercial plywood and that the plywood supplied by the manufacturers in South India was not properly treated with the necessary chemicals with the result that it was not acceptable to them. He could not, however, throw much light on the details of the testings carried out by the Inspectorate at the source of supply. One of the manufacturers present at the inquiry stated that he had seen the testing equipment on which plywood samples were tested and had found that the machinery itself was not in a proper working order. He, therefore, suggested that the adverse report on the plywood made by the Inspectorate was, perhaps, due to the defective testing equipment. Judging from the evidence before us, we consider that the plywood as manufactured in the country at present is not inferior to the imported variety.

9. The quantity and value of plywood and other laminated imports wood imported into the country are published in the Sea-borne Trade Statistics, while the imports of tea chests are shown only in terms of value. It is not, therefore, possible to co-relate the imports of tea chests with the estimated domestic demand and indigenous production. In the interests of both the tea chest industry and the tea industry it is necessary to know the number of tea chests imported against the import licences issued by the Chief Controller of Imports, New Delhi. We, therefore, recommend that the Collectors of Customs should maintain separate records of tea chests imported into the country in terms of numbers as well. The following Tables A and B indicate the imports of plywood and tea chests into the country from

1946-47 to 1949-50 (upto 30th September, 1949) as published in the Monthly Accounts of Sea-borne Trade and Navigation of India.

TABLE A

*Imports of plywood and other laminated wood  
(other than veneers for match boxes)*

Year	Quantity tons	Value Rs.
1946-47	3	6,524
1947-48	66	73,869
1948-49*	30	26,549
1949-50* (1st April to 30th September 1949)	62	55,748

TABLE B

*Imports of tea chests (entire or in sections)*

Country of consignment	VALUE OF IMPORTS			
	1946-47	1947-48	1948-49	1st April to 30th Sept. 1949
	RS.	RS.	RS.*	RS.*
1. United Kingdom	86,495	1,510	11,703	5,34,032
2. Canada	7,39,726	1,35,216	27,95,018	1,53,413
3. Finland	-	-	-	54,26,455
4. U.S.A.	1,30,55,432	1,01,72,836	1,10,50,115	9,99,029
5. Other countries	-	5,87,641	50,08,701	18,40,777
	1,38,61,653	1,08,77,403	1,88,63,537	89,53,706

\*From 1st March 1948, the figures given under these columns include the Sea-borne Trade of India with Pakistan and exclude the direct foreign trade of Pakistan.

It would appear from Table A above that during the last three and a half years, imports of plywood and other laminated wood have been fluctuating from year to year. We were informed that before the last war, the bulk of imports of plywood and tea chests came from the Baltic States but that during the war, Canada became the principal source of supply. During the period from 1946-47 to 1948-49, the principal exporter of tea chests to India was U.S.A. followed

by Canada. In the first six months of 1949-50, however, imports were mainly from Finland which supplied about sixty per cent. of the total imports during this period.

10. (a) In paragraph 3 (b) above, we have described  
 import control the import control policy of Government from 1947 upto the end of December, 1949, and referred to the complaints of the industry regarding that policy. We now discuss Government's import policy for the shipping period January-June 1950 and make certain suggestions with regard to the future import control. According to Public Notice No.1(6)-I.T.C.-50, dated 23rd January, 1950, governing the issue of import licences for tea chests, Government have decided to issue import licences for one million plywood tea chests from soft currency areas for the period from January to June, 1950. It is also stipulated in the Public Notice that "importers will be required to buy tea chests from indigenous sources to the same extent as the quantity licensed for importation as a condition for the grant of import licences. For this purpose satisfactory evidence of contracts made at any time on or after the 1st December, 1949, for the purchase of indigenous tea chests of approved quality from any manufacturers (regardless of management) should be furnished along with the application, on or at least before the issue of the licence." During the course of the public inquiry, the Indian section of the industry contended that it would derive no benefit from this Public Notice inasmuch as the importers were at liberty to purchase the indigenous products from the non-Indian section of the industry as well. The two non-Indian factories in Assam, from which the tea industry usually purchases the indigenous tea chests, can produce between them about one million chests annually. It is, therefore, open to the tea industry to purchase one million chests from these two factories against the importation of one million chests from abroad; in that event, the Indian section of the industry would derive no benefit from import control. As a matter of fact, during the year 1949, it was the Indian

section of the industry which had practically no demand for its product, while the two Assam factories did good business. The indigenous manufacturers further contended that the tea trade in the country was interested in the importation of tea chests as there existed a close connection between the tea agency houses and the agents of imported chests. In this connection, the representative of the Indian Tea Association stated that the tea gardens would prefer to make purchases from the two Assam factories, because the quality of their product had been found to be quite satisfactory and also because the tea gardens had established their business contacts with them a long time back. With regard to the interest of the tea gardens in imported chests, we may point out that the Tariff Board in its report on the industry (1927) had observed as follows;

"A feature of the tea chests trade is the close connection between the agents for the various purchases of imported tea chests and the management of the tea gardens. All the leading importers in India are also managing agents for a large number of gardens and it is obvious that in these circumstances, the inducement to continue the use of imported chests is considerable."

The representative of the tea industry informed us that the tea gardens were interested in the importation of foreign chests not because they had any vested interest as represented by the indigenous industry, but because the price of the imported chests was lower than that of the indigenous chests. We are, however, given to understand that the plea under which the tea gardens had been pressing for issue of import licences hitherto was that the quality of the indigenous product was unsatisfactory. Now that necessary steps are being taken both by the indigenous industry and the D.G.I. & S. to improve the quality of the indigenous product and to ensure that the indigenous products conform to the specifications laid down by the Indian Standards Institution,

the tea industry lays stress on the factor of price rather than quality. During the inquiry, the representatives of the indigenous industry gave an assurance that, if the tea industry could guarantee its co-operation, they would see that the indigenous tea industry was supplied with quality tea chests at a cheaper price than the imported ones. The representative of the Indian Tea Association could not, however, guarantee the full offtake of the tea chests from the Indian factories. He stated that the policy of the Association to purchase tea chests from the indigenous manufacturers would depend upon the import control policy of Government. We, however, consider that the import control policy should normally be based on the indigenous production and stocks of chests available with the importers and tea gardens. It is also in the long-term interest of the tea industry that it should give sufficient encouragement to the indigenous industry by obtaining all its requirements from the latter. We were informed by the representatives of the Tea Association that the tea chest industry in Finland had been built up with finance and technical guidance furnished by the U.K. A representative of the importing houses, however, informed us that only thirty-six per cent. of the European section of the tea industry was *directly* interested in the importation of tea chests. But whatever the extent of such interest and association it is imperative that every possible encouragement should be given by the Indian tea industry to the indigenous manufacturers in the larger interests of the country. We are, therefore, of the opinion that in fixing import quotas, the capacity of the indigenous industry to meet the demand for tea chests, should be taken into consideration.

(b) The decision of Government in respect of imports of foreign tea chests would partly depend upon the stocks available with the tea gardens. A correct picture of the stocks of tea chests with the gardens was not available to us. Divergent views were expressed at the inquiry by the indigenous tea chest manufacturers and the representative

of the tea industry on this subject. The indigenous manufacturers contended that the stocks with the gardens might be estimated at about two million chests which must be considered to be their normal annual carryover. The representative of the Tea Association, on the other hand, stated that, according to the Chairman of his Association, the stocks of tea chests with the tea gardens in North India at the beginning of 1950 were about 1.48 million chests, made up of 1.30 million chests with the members of the Association and 0.18 million chests with the non-member gardens. The stocks with the gardens in the South were estimated to be 0.125 million chests. We were given to understand that the Chairman, Central Tea Board, was to issue a directive to the tea gardens calling upon them to furnish him with detailed periodical information with regard to their stocks of tea chests but that he had not yet issued formal instructions in that connection. We attach considerable importance to the collection of periodical returns from the tea gardens with regard to their stocks of chests. We, therefore, recommend that the Chairman of the Central Tea Board should obtain monthly returns from the tea gardens, indicating their stocks of indigenous and imported tea chests at the end of each month. The tea gardens should also be asked to furnish in their returns their estimated requirements of tea chests for the subsequent six months. This would considerably help in planning the production of indigenous chests and arranging the issue of import licences, if necessary, so as to make the chests available to the tea industry well in advance so as to avoid any possible risks to which the export trade in tea may be exposed for want of chests.

(c) The indigenous tea chest manufacturers pleaded that until such time as a clear picture of the stocks with the tea gardens was available to Government, the issue of licences for the importation of one million tea chests sanctioned for the first half of 1950 should be withheld.

As already stated in paragraph 7 above, both the Development Officer of the D.G., I. & S., and the Deputy Inspector-General of Forests of the Agriculture Ministry were of the opinion that there was sufficient capacity in the country to provide the tea industry with satisfactory chests so as to meet the gap between the total demand of five million chests and the existing stocks. Due to lack of demand in 1949, the non-Indian section of the industry was stated to have accumulated large stocks totalling about one million chests. The stocks with the importers were estimated to be about 1.12 million chests including the arrivals expected against the licences issued towards the end of 1949. Even assuming that the stocks with the tea gardens and other importers are not as large as stated during the inquiry and as mentioned above, the problem of supplies of chests is likely to become acute only during the second half of 1950. However, since the licences have already been issued, we propose to discuss only the future licensing policy. It is necessary that accurate data regarding the stocks of chests with the gardens are made available to Government by the Chairman of the Central Tea Board. If, on the basis of the data so furnished, the statistical position warrants the issue of import licences, this should be authorised only to the extent that the requirements of the tea industry cannot be met by good quality tea chests from the indigenous sources. Further, if imports are permitted from Finland, it should be stipulated that the supplies should be made direct from Finland, as direct supply would be cheaper than supply through the tea chests trade of London. Having regard to the longstanding connections of the Indian tea industry with the tea chests trade of London, the former should be able to arrange for imports even at short notice. We have, however, to make it clear that the machinery of import control may be used for purposes of protecting indigenous tea chest industry only so long as such import control has to be continued for balance of payment considerations.

(d) It has since been announced on 26-4-50 that the Government of India have decided to issue licences for the import of one million plywood tea chests during the period January-June, 1950, only to the following associations for the number of sets shown against their names:

United Planters' Association of Southern India, Coonoor.	.. ..	1,60,000
Indian Tea Association, Calcutta.	.. ..	5,12,000
Northern India:		
Indian Tea Planters' Associations, e.g., Itpa, Talpaiguri Association, Tea Planters' Association, Surma Valley Indian Tea Planters' Associa- tion, etc.	.. ..	1,12,000
Tea chest and Plywood Traders' Asso- ciation and Indian Tea Chest Traders' Association, Calcutta.	.. ..	2,00,000
		<u>10,00,000</u>

Various associations of manufacturers have expressed grave concern over the future of the industry consequent on this announcement.

11. According to the report published in the Indian Trade Journal, dated 19th January, 1950, the export of manufactures of wood and timber, viz., chests, boxes, crates and other containers, etc., specified under item 67-A of Part D of the "Export Control Schedule" may be licensed freely. Indigenous plywood tea chests are included in Open General Licence No. 4 and no licence is, therefore, required for their export.

12. The following extract from the First Schedule to the Indian Customs Tariff (Thirty-first Issue) shows the existing rates of customs duty on commercial plywood and tea chests and the fittings thereon:-

Existing  
rates of  
duty.

Item No.	Name of article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the produce or manufacture of			Duration of protective rates of duty.
				The United Kingdom.	A British Colony	Burma	
40(3)	Tea chests including parts and fittings thereof not otherwise specified.	Revenue	30 per cent. <i>ad valorem</i> .	...	...	Free	
40(4)	Plywood including plywood panels for tea chests.	Protective.	30 per cent. <i>ad valorem</i> .	...	...	Free	31st March 1950.
40(5)	Battens for tea chests.	Protective.	30 per cent. <i>ad valorem</i> .	...	...	Free	31st March 1950.

13. A statement showing the c.i.f. prices, customs duty, c.i.f. prices and clearing charges and landed costs of imported landed costs. plywood and tea chests as furnished to the Board by the Collectors of Customs and leading importers will be found in Appendix V. During the course of the public inquiry, we were informed that the principal competitors of the indigenous product are U.S.A. and Finland. The indigenous manufacturers were also apprehensive about Japanese competition stating that Japan was likely to be a strong competitor in the near future. But having regard to our present foreign exchange position, we do not believe that any large scale imports of tea chests would be permitted from dollar and hard currency areas, particularly when these products are available from soft currency countries. We have, therefore, confined our examination to imports from Finland. On the basis of the figures of c.i.f. prices, furnished by the Collectors of Customs and the importers, the lowest c.i.f. price relating to import from Finland is found to be Rs. 4-8-11 per set of 6 panels. This price relates to imports made in August 1949. However, during the public inquiry, we were informed by the importers that the import price of Finnish tea chests has since increased and

that, for the purpose of determining the quantum of protection required by the indigenous industry, the c.i.f. price should be taken at Rs. 4-11-0 per set. We have, therefore, adopted this price for the purpose of comparison with the estimated fair selling price of the indigenous product. Adding clearing charges at Re. 0-5-0, the landed cost ex-duty works out to Rs. 5-0-0.

14. The Cost Accounts Officer deputed by the Board  
Cost of production examined the accounts of:  
and fair selling  
price of indian made  
tea chest panels.

- (a) The Standard Furniture Co., Ltd.,  
Kallai, S. Malabar,
- (b) The Assam Railways & Trading Co.,  
Ltd., Margherita, Assam,
- (c) The Bengal Bobbin & Plywood Co.,  
Ltd., Calcutta.

As at the time of investigation, it was found that the Bengal Bobbin & Plywood Co. had to close down its factory due to the non-extension of its timber contract with the Government of Assam, Messrs. Varat Plywood were also requested to furnish cost data to the Board. The cost data collected from all the four firms were compiled and examined and the cost data of the Assam Railways & Trading Co., Ltd. was considered by the Board to be representative, because the manufacture of plywood and tea chest was the only activity in the factory of this Company. Representatives of the industry also agreed that the costs of Assam Railways & Trading Co., Ltd. should be taken as the basis for assessing the measure of protection. As the manufacturers requested that the details of their cost data should not be published, these are being forwarded to Government as a separate confidential enclosure and only the final figures are given here. The fair selling price calculated by the Cost Accounts Officer for the year 1948-49 for Assam Railways & Trading Co., Ltd., is Rs. 5-10-3 for a set of panels for a tea chest of size 24" x 19" x 19" after providing for interest on

working capital and return on block at 10 per cent. on the cost of production. This price is arrived at on the basis of:-

- (i) 'Overall' rate for timber paid at Rs. 2,369 per c.ft .,
- (ii) the yield of plywood at 24.6 sq.ft per c.ft. of log timber, and
- (iii) casein at Rs. 4,526/- per ton.

15. In arriving at the cost of production and fair Estimate of cost of selling price for the future, the Board had production and fair selling price for the future, viz., 1950-53. to assume a maximum price for timber. After careful examination of the data, and in consultation with the representatives of the Ministry of Agriculture and the Development Department of the Ministry of Industry and Supply, the Board came to the conclusion that in calculating the fair selling price, it was reasonable to assume the following:

- (i) A maximum price of Rs. 4/- per c.ft. of timber at factory;
- (ii) Rs. 3,000/- per ton for casein; and
- (iii) Yield of plywood at 27.6 sq. ft. per c. ft. of log timber.

On this basis, the Board estimates that the fair selling price of panels for a tea chest of size 24" x 19" x 19" will work out to Rs. 5/4/8 inclusive of interest on working capital, and return on the block at 10 per cent. on the cost of production. Representatives of the industry present at the inquiry agreed that this was reasonable.

16. It will be found from the details given in paragraph Measure of protec- 13 above that the landed cost ex-duty of tion required. imported tea chest panels works out to Rs. 5/-. The fair selling price calculated for the year 1948-49 is Rs. 5/10/3. During the course of the inquiry, we have received sufficient evidence to show that considerable

prejudice exists against the indigenous tea chests. We have allowed 15 per cent. to provide for this factor. Adding this to the fair selling price of Rs. 5/10/3, the fair selling price inclusive of provision to counteract prejudice will come to Rs. 6/7/9 per set of tea chest panels. The difference between the fair selling price of Rs. 6/7/9 and the ex-duty landed cost of Rs. 5/- is Rs. 1/7/9 which works out to 32 per cent. on the c.i.f. price of Rs. 4/11/-. Making a small allowance for improvement in efficiency, we consider that the existing duty of 30 per cent. should give adequate protection to the indigenous industry. We, therefore, recommend the continuance of the same rate of 30 per cent. protective duty for a further period of three years with effect from 1st April, 1950.

17. (a) *Inspectorate*.--The previous Tariff Board in 1947  
 Subsidiary recommended that an inspecting agency should  
 tions. be established for testing the quality of  
 Indian plywood and certifying that it conforms to the prescribed specifications. The Government of India have set up, under the supervision of the Directorate General of Industries and Supplies, three Regional Inspectorates in Calcutta, Margherita and Calicut respectively. Six Inspectors have already been appointed, three at Calcutta, one at Margherita and two in South India. The tea industry, while expressing its readiness to co-operate with the Inspectorates, has suggested that some of the Inspectors who have been appointed lack necessary technical knowledge and experience and are not adequately paid. We have inquired into this allegation. We have been informed by the Deputy Director General of Industries and Supplies that the Inspectors are all M.Sc.s and that most of them have received specialised training for years at the Forest Research Institute, Dehra Dun. These Inspectors were carefully chosen out of a large number of applicants by a Selection Committee which included Senior Officers of Government, who have been responsible for inspection of stores on behalf of Government. The functions of the

Inspectors are to inspect all plywood factories within their jurisdiction periodically and to report to the Directorate General of Industries and Supplies whether the factories are suitably equipped with regard to storage space, machinery, drying arrangements and stock of suitable glue and render such technical assistance as is required by the manufacturers. On the basis of the reports received from the Inspectors, the question as to whether a particular factory should be included in the list of approved factories or not, would be decided by the Directorate General of Industries and Supplies. So far as the inspection of tea chests is concerned, these Inspectors are not final authorities for deciding as to the suitability or otherwise of the tea chests manufactured. The ultimate authority vests in the Directorate General of Industries and Supplies, who have assured us that they would employ the best available talent in the country to give a decision, should such a need arise. These Inspectors are only meant to collect first-hand information for the Directorate General of Industries and Supplies and are reported to possess the necessary technical qualifications for this purpose. We believe the Directorate General of Industries and Supplies have taken steps in the right direction although the action has been somewhat belated. Moreover, the Inspectorate will have to be expanded gradually. For the due discharge of their onerous duties, it is necessary that the Inspectors should receive wholehearted co-operation from the tea chest manufacturers, and we trust that every facility would be offered by the manufacturers in this regard. The tea industry also should, in its own interest, bring to the notice of the Directorate General of Industries and Supplies such specific defects in the tea chests supplied as may be noticed by them. We have no doubt that the Directorate General of Industries and Supplies will, on receipt of such complaint from the tea industry, immediately institute an inquiry and take such action as may be deemed necessary as a result of the inquiry. To inspect the quality of timber, glue, etc., the need of a testing laboratory

in each region cannot be over-emphasised. At present, there are only two Government testing houses, one at Alipore and the other at Dehra Dun. In order to enable the Inspectors to test the materials, it is necessary to have testing laboratories at the centres of inspection. It should be possible to set up such small scale laboratories at a cost of Rs. 7,000 to Rs. 10,000, which the industry has readily volunteered to contribute. We, therefore, recommend that early steps should be taken by the Directorate General of Industries and Supplies to collect contributions from the manufacturers and set up regional testing laboratories at Calcutta, Assam and South India. The Inspectors, while testing the quality, should guard against any sub-standard articles being passed by them; in case of doubt, they should invariably make a reference to the Directorate General of Industries and Supplies, who should give the final decision and, until such time as the final decision is made available to them, the Inspectors should not pass the doubtful articles. We hope that this arrangement would adequately meet the requirements of both the indigenous tea chest manufacturers and the tea planters.

(b) We have been informed by the Directorate General of Statutory cess Industries and Supplies that, pending a decision regarding the department under which the Inspectorate recommended by the previous Board should function, no steps could be taken by them to collect the cess of 8 annas per 100 sq. ft. of plywood as recommended by the Tariff Board in 1947; but that, an Inspectorate having now been established, steps would be taken to implement the Board's recommendation. While recommending the levy of a cess, the Board stipulated that research with regard to the industry should be undertaken by the Forest Research Institute, Dehra Dun. In this connection, the representative of the Ministry of Agriculture has informed us that the necessary machinery for conducting research has been received from the U.S.A. and that it is in process of erection. As regards the rate of cess, the

industry is of the view that the rate of Re. 0-8-0 per 100 sq. ft. is on the high side and has suggested that a ceiling rate should be fixed for each factory; or that, alternatively, the industry should be asked to bear such expenses as may be actually incurred by the Research Institute in conducting research relating to the plywood and tea chest industry. The representatives of the Assam factories contended that, as they were major producers and as they had already made sufficient progress in improving the quality of their products, they should not be asked to contribute towards research in proportion to their production because the benefit of such research would largely go to the other units in the industry. Since, however, the benefit of research at the Institute will not be confined to a few factories but will be extended to the industry as a whole, we are unable to accept this plea. The industry has also urged that, in case it is proposed to levy a statutory cess at the same rate as recommended by the previous Tariff Board, a part of the proceeds of the cess should be earmarked by Government for the development of the industry. We have examined this proposal and consider it reasonable. We, therefore, recommend that a statutory cess of Re. 0-8-0 per 100 sq. ft. of plywood manufactured in India should be levied on the basis of actual sales and that the proceeds of the cess should be partly utilised for conducting research at the Forest Research Institute, Dehra Dun, and partly for the development of the industry on healthy lines.

(c) *Tea Chest Committee*.--The main complaint of the Indian section of the industry is that, although the quality of its products has considerably improved during the last three years and now compares favourably with that of the imported ones, the industry suffers seriously for want of orders. In this connection, it has been pointed out that, with a view to ensuring the sales of their products, the South Indian factories have set up a marketing organisation and built up stocks at Calcutta. They have also guaranteed

the quality of their products and by stamping them with their own brand "SIPMA" and promising to replace at their own cost any chests that may be found to be defective by the tea planters. In spite of these measures, it has been stated that, the marketing organisation has not succeeded in pushing up the sales of the products for want of co-operation from the tea industry. On behalf of the tea industry, it has been argued that the reluctance shown by it is due to the inferior quality and the higher price of the indigenous chests. We do not propose to discuss here the question of quality which has been fully dealt with in paragraph 8 above. In view of the importance of the export of tea in the national economy, it is necessary that the conflicting interests of the indigenous tea chest industry and the tea industry should be reconciled. We believe that most of the controversies now raging between the producers and the consumers can be amicably resolved if they are brought together. At the same time, it is also essential to ensure that inferior chests manufactured in the country do not find their way to the tea gardens. We, therefore, recommend that the approved factories should form themselves into an association. Other factories should also be admitted to the membership of this association when they are approved by the Directorate General of Industries and Supplies. To ensure the quality of their products, the manufacturers should stamp their name or trade mark as also the year of manufacture on the chests. We also recommend that a Tea Chest Committee should be formed consisting of three representatives each from the approved factories' association and the Indian Tea Association and presided over by a representative of the Directorate General of Industries and Supplies. This Committee should function under the control and supervision of the Chairman, Central Tea Board. It should undertake a statistical survey of the stocks of tea chests with the gardens and the manufacturers and determine the requirements of the tea industry for chests for each season. This Committee should also chalk out a production programme for

each member of the approved factories' association, depending upon their capacity, supply position of raw materials, etc. The Committee should also be able to give the necessary advice to Government in connection with their import control policy regarding tea chests.

18. As already mentioned in paragraph 1(b) above, under the Ministry of Commerce Resolution No. 30-T(1)/48, dated 6th August, 1948, the Board is authorised to maintain a continuous watch over the progress of protected industries and advise Government regarding the necessity or otherwise of modifying the protection or assistance granted. In order that the Board may keep an effective watch over the progress and development of this industry, it is necessary that all the manufacturing units in the industry should maintain and forward to the Board periodical statements showing detailed cost data, statistics of production, sales and stocks as per proforma given in Appendix VI.

19. Our conclusions and recommendations may be summarised as under:-  
 Summary of conclusions and recommendations.

(1) The claim of the industry to protection or assistance was referred to the Interim Tariff Board in 1946 and the Board recommended that the then existing revenue duty of 30 per cent. *ad valorem* should be converted into a protective duty of 25 per cent. The Government, while agreeing to the conversion, decided to retain the duty at the same rate. [Paragraph 2 (11).]

(2) In view of the fact that Gurjan timber is in large demand for buildings and for Railways, we are unable to accept the claim of the plywood industry that the entire quantity of Gurjan timber which will be extracted from the Andamans should be made available to them. [Paragraph 5(a).]

(3) The representatives of the industry agreed that the species of timber other than Gurjan, which have been recommended by the Indian Standards Institution, would prove to be equally suitable for the manufacture of plywood provided that such timbers are properly processed. [Paragraph 5(a).]

(4) As there are reasonable prospects of a large variety of the different species of timber available in the country being found suitable for the manufacture of plywood we recommend that researches on different species of timber should be undertaken by the Forest Research Institute, Dehra Dun and that the expenses of such researches should be met out of the proceeds of the cess which we have proposed. [Paragraph 5(a).]

(5) In view of the position of tea export as a dollar earner and the value of plywood tea chests as an accessory for the tea export trade, we consider the development of the indigenous plywood and tea chest industry a matter of national importance. [Paragraph 5(a).]

(6) We reiterate the recommendations of the previous Tariff Board (1947) that the species of timber suitable for the plywood industry should be earmarked for it and that steps should be taken to ensure that such species of timber are not used by inefficient factories resulting in wastage and loss. We also recommend that in formulating their forest policies the State Governments should take into consideration the desirability of promoting the development of the indigenous plywood and tea chest industry. [Paragraph 5(a).]

(7) In view of the speculative tendency of the price of casein which depends upon the indigenous production of butter, we recommend that the export of indigenous casein should continue to be prohibited and that licences for import of foreign casein should be issued to plywood and tea chest manufacturers for their own consumption. [Paragraph 5(b).]

(8) In view of the fact that the demand for casein by the plywood industry is going down it should be possible for the indigenous manufacturers to regulate the prices of imported casein by placing their orders jointly. [Paragraph 5(b).]

(9) Since it should be possible to use other adhesives such as protein glues, vegetable glues, resinous glues etc., in the manufacture of tea chest, we recommend that the Forest Research Institute, Dehra Dun, should undertake research into various types of glues for the benefit of the indigenous industry; the expenses incurred by the Institute for such research being met out of the proceeds of the cess we have recommended. [Paragraph 5(b).]

(10) Various estimates of the tea industry's annual requirements for tea chests were received by us. After careful examination of the evidence placed before us, we have come to the conclusion that the annual domestic demand for tea chests for the next two or three years would be between 5 to 5.5 million chests of the standard size 19" x 19" x 24".. [Paragraph 6.]

(11) We are of the opinion that the present annual rated capacity of the indigenous industry can be placed at 100 million sq. ft. both for tea chests and commercial plywood. [Paragraph 7(a).]

(12) The maximum production attained by the industry was in 1948 when the industry produced 53.73 million sq. ft. of plywood during the first eight months; production thereafter suffered a steep fall as a result of the arrival of imported chests. [Paragraph 7(b).]

(13) Although the quality of the Indian made chests has improved during the last three years, there is still scope for further improvement. [Paragraph 8.]

(14) We recommend that the Collectors of Customs should maintain separate records of tea chests imported into the

country not only in terms of value but in terms of numbers as well, so that it may be possible to co-relate the imports of tea chests with the estimated domestic demand and indigenous production. [Paragraph 9.]

(15) It is to the long term interest of the tea industry that it should give sufficient encouragement to the indigenous tea chest industry by obtaining all its requirements from the latter. [Paragraph 10(a).]

(16) In the larger interests of the country, it is imperative that every possible encouragement should be given to indigenous manufacturers. We are, therefore, of the opinion that in fixing import quotas, the capacity of the indigenous industry to meet the demand for tea chests should be taken into consideration. [Paragraph 10(a).]

(17) We attach considerable importance to the collection of periodical returns from the tea gardens with regard to their stocks of chests. We, therefore, recommend that the Chairman of the Central Tea Board should obtain monthly returns from the tea gardens indicating their stocks of indigenous and imported tea chests at the end of each month. The tea gardens should also be asked to furnish in their returns their estimated requirements of tea chests for the subsequent six months. This would considerably help in planning the production of indigenous chests and arranging the issue of import licences, if necessary, so as to make the chests available to the tea industry well in time so as to avoid any possible risks to which the export trade in tea may be exposed for want of chests. [Paragraph 10(b).]

(18) Due to lack of demand in 1949, the non-Indian section of the industry was stated to have accumulated large stocks totalling about one million chests. The representatives of the D. G., I. & S., and the Ministry of Agriculture are of the opinion that there is sufficient capacity in the country to provide the tea industry with satisfactory chests so as to meet the gap between the total demand and the existing stocks. [Paragraph 10(c).]

(19) If imports are permitted from Finland, it should be stipulated that the supplies should be made direct from Finland, as direct supply would be cheaper than supply through the tea chests trade of London. [Paragraph 10(c).]

(20) In view of our present foreign exchange position we do not believe that any large scale imports of tea chests would be permitted from dollar and hard currency areas. We have, therefore, confined our examination to imports from Finland. [Paragraph 13.]

(21) For the purpose of determining the quantum of protection required by the indigenous industry, we have taken the lowest c.i.f. price of imports from Finland which is Rs. 4-11-0 per set of six panels. [Paragraph 13.]

(22) Out of the four factories namely, The Standard Furniture Co., Ltd., Kallai, South Malabar; The Assam Railways & Trading Co., Ltd., Margherita, Assam; The Bengal Bobbin and Plywood Co., Ltd., Calcutta, and Varat Plywood, Calcutta, the cost data of the Assam Railways & Trading Co., Ltd., Margherita, was considered by the Board to be representative because the manufacture of plywood and tea chest is the only activity in the factory of this company. [Paragraph 14.]

(23) After providing for interest on working capital and return on block at 10 per cent. on the cost of production, we have arrived at a fair selling price of Rs. 5-10-3 for a set of panels for a tea chest of size 24" x 19" x 19". [Paragraph 14.]

(24) On the basis of a maximum price of Rs. 4/- per c.ft. of timber at factory, Rs. 3,000/- per ton of casein and taking the yield of plywood at 27.6 sq. ft. per c.ft. of log timber, we have estimated the future fair selling price of panels for a tea chest of size 19" x 19" x 24" at Rs. 5-4-8. [Paragraph 15.]

(25) During the course of the inquiry we have received sufficient evidence to show that considerable prejudice exists against the indigenous chests. After providing 15 per cent. for prejudice and making a small allowance for improvement in efficiency we consider that the existing duty of 30 per cent. should give adequate protection to the indigenous industry. We therefore recommend the continuance of the same rate of 30 per cent. protective duty for a further period of three years with effect from 1st April, 1950. [Paragraph 16.]

(26) We are satisfied that the Directorate General of Industries and Supplies have taken steps in the right direction in the setting up of the Inspectorate although the action has been somewhat belated. For the due discharge of their onerous duties, it is necessary that the Inspectors should receive wholehearted co-operation from the tea chest manufacturers, and we trust that every facility would be offered by the manufacturers in this regard. [Paragraph 17(a).]

(27) The tea industry should in its own interest bring to the notice of the Directorate General of Industries and Supplies such specific defects in the tea chests supplied as may be noticed by them. The Directorate General of Industries and Supplies will on receipt of such complaint immediately institute an inquiry and take such action as may be deemed necessary. [Paragraph 17(a).]

(28) In order to maintain the quality of indigenous chests we recommend that early steps should be taken by the Directorate General of Industries and Supplies to collect contributions from the manufacturers and set up regional testing laboratories at Calcutta, Assam and South India. [Paragraph 17(a).]

(29) We suggest that immediate steps be taken to collect a statutory cess of Re. 0-8-0 per 100 sq. ft. of plywood manufactured in India. The proceeds of the cess should be

partly utilised for conducting research at the Forest Research Institute, Dehra Dun and partly for the development of the industry on healthy lines. [Paragraph 17(b).]

(30) In view of the importance of the export of tea in the national economy, it is necessary that the conflicting interests of the indigenous tea chest industry and the tea industry should be reconciled. As a first step to achieve this objective we recommend that the approved factories should form themselves into an association and a tea chest committee should be formed consisting of three representatives each from the approved factories' association and the Indian Tea Association presided over by a representative of the Directorate General of Industries and Supplies. [Paragraph 17(c).]

(31) All the units in the industry should maintain and forward to the Board, periodical statements showing detailed cost data, and statistics of production, sales and stocks. [Paragraph 18.]

20. The Board wishes to thank Mr. J. Bannerjee, Inspector Acknowledgements General of Forests, Ministry of Agriculture, Mr. Jagdamba Prasad, Development Officer (Timber), Directorate General of Industries and Supplies, Government of India, and Mr. R. Sundaram, Cost Accounts Officer, for their assistance in connection with this inquiry.

G. L. MEHTA,  
*President.*

H. L. DEY,  
*Member.*

B. V. NARAYANASWAMY,  
*Member.*

R. DORAISWAMY,  
*Secretary.*

Bombay,  
The 30th April, 1950.

APPENDIX I

[ *Vide* paragraph 3(e) ]

TENTATIVE INDIAN STANDARD

SPECIFICATION

FOR

PLYWOOD TEA-CHESTS

U.D.C.

सत्यमेव जयते

674.24 : 674.4 (083.75) (54)

INDIAN STANDARDS INSTITUTION

BLOCK 11, OLD SECRETARIAT

DELHI 2.

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*Members:*

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TENTATIVE INDIAN STANDARD SPECIFICATION  
FOR  
PLYWOOD TEA-CHESTS

*FOREWORD*

In 1946 the Directorate General of Industries & Supplies of the Government of India set up a panel for plywood. This panel appointed a subcommittee to draft a specification for tea-chests in collaboration with the Indian Tea Association, Tea Controller for India, the Forest Research Institute and the representatives of the trade. The draft drawn up by the subcommittee was finalized, after wide circulation among those interested, as a provisional specification. This specification has served as the basis for the Tentative Indian Standard Specification for Plywood Tea-chests. Certain additional constructional details have been included for all the sizes accepted as standard.

Where alternative requirements have been given for example, thickness of metal fittings and lining, the purchaser and supplier may base their agreement on one or the other alternative, before the order is proceeded with.

The Indian Standards Institution is indebted to the Director of Technical Development, Army Headquarters; the Directorate General of Industries & Supplies; the Forest Research Institute; the representatives of the associations of the plywood manufacturers; the Indian Tea Association and manufacturers, who have considerably assisted in this work.

The Forest Research Institute, Dehra Dun, has facilities for carrying out all the tests included in this specification. The Government Test House, Alipore, Calcutta; Technical Development Establishment Laboratory (Stores), Kanpur; Forest Research Laboratory, Bangalore; and Tocklai Experimental Station of Indian Tea Association, Cinnamara Post (Assam) have also facilities for carrying out some of the tests and it is hoped that the manufacturers and users would avail themselves of the service.

This standard relates chiefly to the technical provisions for guiding the purchase of tea-chests, but does not include all the necessary provisions of a contract.

## 1. SCOPE

1.1. This specification lays down the definitions used in the plywood industry and the trade, requirements for plywood for tea-chests, standard sizes for tea-chests and components, the tare and the tests for plywood and tea-chests.

## 2. DEFINITIONS

2.1. For the purpose of this specification, the following definitions shall apply:

2.2. Blister - Spot or area where veneers do not adhere together properly and may bulge like a blister.

2.3. Check - A separation of the fibres extending along the grain which does not affect the entire thickness of a veneer or ply.

2.4. Closed Split - See 2.19.1.

2.5. Core - The central layer or layers of plywood.

2.6. Cross-grain - An arrangement of the fibres in which they do not run longitudinally or in one direction, which is indicated by an end-wise appearance of the fibres on the face of the veneer or batten.

2.7. Decay - Disintegration of wood tissue due to attack by wood-destroying fungi.

2.8. Delamination - A separation of adjacent plies due to poor and defective glue adhesion.

2.9. Discoloration - Areas of a colour differing from that normally associated with the species and occurring in either streaks or patches.

Note.- It may be due to the blue stain or other moulds, glue, water or any chemical action.

2.10. Dote (or Incipient Decay) - Patches or streaks in various stages of decay differing from surrounding wood chiefly in colour which may become lighter or darker than the normal.

2.11. Insect Hole (Borer Hole) - A hole caused by the attack of wood-boring insects.

2.12. Knot - A portion of a branch embedded in the wood by the natural growth of the tree.

2.12.1. Dead Knot - A knot not firmly joined throughout to the surrounding wood, sometimes including bark.

2.12.2. Tight Knot - A knot free from decay and so held by growth as to retain its position in the piece.

2.13. Metal Clips - Fasteners used in the assembly of plywood to prevent movement of the veneers during processing. These are removed from the finished product.

2.14. Open Split - See 2.19.2.

2.15. Patch - A piece of sound veneer placed in and glued to a veneer from which defective portion has been removed.

2.16. Plies - The individual layers of veneers forming the plywood.

2.17. Plywood - An assembled product made up of layers of veneers or plies glued together with the grain of plies alternating in direction, except in plywood of even number of plies in which the core veneers will be laid in the same direction.

2.18. Shooks - Six pieces of plywood, intended for the manufacture of a complete tea-chest, excluding all fittings.

2.19. Split - A separation of the fibres of a piece of veneer or wood from face to face.

2.19.1. Closed Split - A split in which the two adjacent edges are in close contact with each other.

2.19.2. Open Split - A split in which adjacent edges are not in close contact with each other.

2.20. Tight Knots - See 2.12.2.

2.21.- Veneer - A thin sheet of wood produced by slicing or rotary cutting.

2.22. Warp - Distortion due to stresses causing departure from a plane or true form.

## PART I

### PLYWOOD FOR TEA-CHESTS

#### 3. GENERAL REQUIREMENTS FOR PLYWOOD

3.1. Timber - Timber of any of the species given in Appendix A shall be used, subject to certain species being treated in the manner described therein.

3.2. Bond - The adhesive in the bond shall be chiefly of lactic casein or any other glue which stands the test for water resistance detailed in 9.1 and dry adhesion test detailed in 9.2 of this specification; but should be such as would not impart any taint to the tea.

### 3.3. Manufacture.

3.3.1. Knots - Only tight knots shall be accepted, but not within 2 in. (5 cm.) of any edge of a plywood board. Dead knots shall not be accepted.

3.3.2. Insect Holes - No insect holes shall be allowed.

3.3.3. Patches - Portion affected by insect holes or other defects in a veneer may be cut out and the portion so removed securely patched with sound pieces of veneer. Not more than 4 patches per panel shall be permitted and no patch shall exceed 2 in. (5 cm.) in its maximum dimension.

3.3.4. Discoloration - Harmless discoloration (as defined in 2.9) not exceeding 40 per cent. of the area on the inner face of a panel and 20 per cent. on the outer face, shall be permitted.

3.3.5. Veneers - The veneers shall be either rotary cut or sliced. They shall be dried before bonding, preferably in a mechanical dryer or a kiln to a moisture content not above 10 per cent. (see Appendix C for the method of testing).

3.3.6. Joints - Not more than one tight joint shall be permitted per ply and no piece shall be less than 4 in. (10.2 cm.) wide. The veneers shall be securely jointed together without overlap. End joints, that is joints across the grain, shall not be permitted.

3.3.7. Bond - The glue shall be evenly spread, and no unglued areas shall appear on separation of the veneers.

3.3.8. Assembly - The direction of grain of the veneers shall be at right angles in adjacent plies. In the case of boards comprising an even number of plies, the grain of the centre pair shall follow the same direction. A deviation in the direction of the grain not exceeding  $10^{\circ}$  shall be permitted in adjacent plies intended to run at right angles. In all cases the grain on both faces shall run in the same direction.

3.3.9. Moisture Content - After pressing, the finished plywood shall be reconditioned to a moisture content not above 15 per cent.

3.3.10. Metal Clips - Any metal clips used for binding veneers during manufacture shall be removed.

3.4. Thickness of Plywood - For all sizes of tea-chests (see 6), the minimum thickness of plywood shall be 4 mm. except for the tea-chest of size 16 x 16 x 18 in. (40.6x40.6x45.7 cm.) for which the minimum shall be 3.5 mm.

### 3.5. Finish.

3.5.1. The plywood boards shall be of uniform thickness.

3.5.2. The plywood boards shall be smooth. Sanding shall be given on one or both sides as ordered for. The edges of the boards shall be trimmed square and smooth.

3.5.3. The plywood boards shall be free from checks, splits, borer holes, blisters, knots, decay, warp and delamination.

3.5.4. In any one consignment, the outside face veneers of all shooks in a lot sufficient for at least 108 chests (or of all the chests if the order is for a smaller quantity) shall be of the same species.

## 4. MARKING AND STAMPING.

4.1. Panels shall be legibly and indelibly marked or stamped with the manufacturer's name, initials or recognized trade mark together with the year of manufacture.

## 5. DELIVERY

5.1. The plywood boards shall be delivered in a clean and dry condition and shall be suitably packed according to the usual trade practice, or as otherwise ordered by the purchaser.

## PART II

## TEA - CHESTS

## 6. STANDARD SIZES FOR TEA-CHESTS.

6.1. The following shall be the standard sizes the dimensions given being the outside dimensions:

19 x 19 x 24 in. (48.3 x 48.3 x 61.0 cm.)

19 x 19 x 22 in. (48.3 x 48.3 x 55.9 cm.)

18 x 18 x 20 in. (45.7 x 45.7 x 50.8 cm.)

17 x 17 x 19 in. (43.2 x 43.2 x 48.3 cm.)

16 x 16 x 20 in. (40.6 x 40.6 x 50.8 cm.)

16 x 16 x 18 in. (40.6 x 40.6 x 45.7 cm.)

## 7. COMPONENTS.

## 7.1. Battens.

7.1.1. Battens shall be manufactured from any of the timbers listed in Appendix A, subject to certain species being treated in the manner described therein. They may also be made from fir (*Abies* spp.), spruce (*Picea morinda*) and pine (*Pinus longifolia*, *Pinus excelsa* and *Pinus khasya*), provided timber from pine species does not contain excessive resin.

7.1.2. The battens shall be free from incipient decay, borer attack, knots, excessive cross-grain and other defects which are likely to reduce the strength of a batten.

7.1.3. The moisture content, when determined in accordance with Appendix C, shall not exceed 12 per cent.

7.1.4. The sizes of battens of different sizes of tea-chests shall be as given in Table I.

7.1.5. In any one consignment, lots of battens sufficient for at least 108 chests (or all, if the lot is of a smaller quantity) shall be of the same species.

7.2. Other Components - Other component parts for tea-chests shall conform to the requirements laid down in Table I.

## 8. TARE.

8.1. Maximum Permissible Weight of Empty Tea-Chests - Weights of tea-chests shall conform to the figures given in item 6 of Table I.

8.1.1. The weight of shooks, if stipulated between the purchaser and supplier, shall not vary from the agreed figure by more than  $\pm 3$  per cent.

8.2. Certificate of Tare - The supplier shall state in the dispatch document (challan) for each consignment the tare of the tea-chests.

8.2.1. The weight of tea-chests shall not vary by more than  $\pm 10$  per cent. of the weight as stated in the certificate of tare (*vide* 8.2 ) and shall not exceed the maximum specified in 8.1.

8.2.2. The supplier shall also indicate in the dispatch document (challan) for each consignment the species of timber used for plywood and battens respectively, and the size of tea-chests.

## PART III

### METHODS OF TEST FOR PLYWOOD AND TEA- CHESTS

#### 9. TESTS FOR PLYWOOD AND TEA-CHESTS.

9.1. Water Resistance Test - Test pieces of 6 x 6 in. (15.2 x 15.2 cm.) size when tested in accordance with the method given in Appendix B shall not delaminate more than 2 in. (5 cm.) all round and should offer a fair resistance to forcible separation of veneers by hand.

9.2. Dry Adhesion Test - The plywood when tested in accordance with the method described in Appendix D and with a moisture content of 10 to 14 per cent., shall have a shearing strength of not less than 150 lb. per sq. in. (10.545 kg. per sq. cm.).

9.3. End-compression Test - The tea-chest of 19 x 19 x 24 in. (48.3 x 48.3 x 61.0 cm.) (filled with tea, dry saw dust or any other material so as to have the same weight as it is intended to contain) shall have an end-compression of not less than 8000 lb. (3628.7 kg.) in the case of 8-batten type chest and 12000 lb. (5443.1 kg) in the case of 12-batten type, when tested according to the method described in Appendix E. The corresponding figures for other sizes shall be the subject of agreement between the purchaser and the supplier.

9.4. Corner-drop Test - The tea-chests (filled as described in 9.3 ) when tested according to the method described in Appendix E shall not fail as a result of being dropped from progressively increasing heights until a height of 40 in. (101.6 cm.) is reached.

9.5. Moisture-content Test- The plywood and the battens when tested in accordance with Appendix C shall have a moisture content not exceeding the figures given in 3.3.5, and 7.1.3 respectively. If plywood is taken from tea-chests for glue adhesion test, the moisture content shall be in accordance with 9.2 (*i.e.*, 10 to 14 per cent.).

## 10. REPORT.

10.1. The results of the tests shall be reported as outlined in Appendices F and G.

TABLE I  
Component parts for Tea-chests

[illegible]

NOTE: For conversion from inches to centimetres, multiply dimensions in inches by 2.54 and for conversion from lb. to kg. multiply lb. by 0.454.  
4 = top, 3 = bottom and 2 = standard wire gauge.

TABLE I (Contd.)  
Component parts for sea-chests

Parts	Pattern Location Type	Chest Sizes				
		19"x19"x24"	19"x19"x22"	18"x18"x20"	17"x17"x19"	16"x16"x20"
T & B f	12	8 pcs. with beaded edges, angled 90° and wv* in centre, 19"x14" x 18"x12" x No. 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 19"x12" x 18"x12" x No. 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 16"x12" x 15"x12" x No. 300.
		4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 19"x14" x 18"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 19"x12" x 18"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 16"x12" x 15"x12" x No. 324G.* to 300.
T & B f	12	8 pcs. with beaded edges, angled 90° and wv* in centre, 19"x14" x 18"x12" x No. 324G.* to 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 19"x12" x 18"x12" x No. 324G.* to 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	8 pcs. with beaded edges, angled 90° and wv* in centre, 16"x12" x 15"x12" x No. 324G.* to 300.
		4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 19"x14" x 18"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 19"x12" x 18"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 17"x12" x 16"x12" x No. 324G.* to 300.	4 pcs.-flat with beaded edges, angled 90° and wv* in centre, 16"x12" x 15"x12" x No. 324G.* to 300.
(b) Pifurated rivets for fixing 8 corner metals.	8	88 pcs.-5/16" x 5/16" x No. 90.	88 pcs.-5/16" x 5/16" x No. 90.	72 pcs.-5/16" x 5/16" x No. 90.	72 pcs.-5/16" x 5/16" x No. 90.	64 pcs.-5/16" x 5/16" x No. 90.
(c) Tenterhooks for closing 8 top B and bottom metals.	12	Nil	Nil	Nil	Nil	Nil
(d) Wire nails, for fixing 8 battens to shooks.	8	48 pcs.-7/8" x No. 130. (+0, -1)	48 pcs.-7/8" x No. 130. (+0, -1)	40 pcs.-7/8" x No. 130. (+0, -1)	32 pcs.-7/8" x No. 130. (+0, -1)	32 pcs.-7/8" x No. 130. (+0, -1)
	12	Nil	Nil	Nil	Nil	Nil
	8	54 pcs.-1" for 1 3/8" x No. 140. (+1, -0)	54 pcs.-1" for 1 3/8" x No. 140. (+1, -0)	46 pcs.-1" for 1 3/8" x No. 140. (+1, -0)	38 pcs.-1" for 1 3/8" x No. 140. (+1, -0)	30 pcs.-1" for 1 3/8" x No. 140. (+1, -0)
	12	Nil	Nil	Nil	Nil	Nil

NOTES: For conversion from inches to centimetres, multiply dimensions in inches by 2.54 and for conversion from lb. to kg. multiply lb. by 0.4536.  
f = top, B = bottom and g = standard wire gauge. \* 324G = 0.0104 in.

TABLE I (Contd.)  
Component Parts for Sea-chests

Parts	Batten Location Type	Chest Sizes			
		19"x19"x24"	19"x19"x22"	18"x18"x20"	18"x16"x18"
(e) Slatting nails	8 All	80 pcs.- 7/8" or 1"x No. 14G. (40, -1) distributed as follows: 58-for 8 top and bottom metals 8-for 2 top shocks 18-for 8 ends of cor- ner metals. 1"x No. 14G. (40, -1) distributed as follows: 72-for 4 corner metals 112-for 8 top and bottom metals 8-for 2 top and bottom shocks 24-for fix- ing 8 top and bottom battens to shocks	80 pcs.- 7/8" or 1"x No. 14G. (40, -1) distributed as follows: 58-for 8 top and bottom metals 8-for 2 top shocks 18-for 8 ends of cor- ner metals. 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 98-for 8 top and bottom metals 8-for 2 top and bottom shocks 18-for fix- ing 8 top and bottom battens to shocks	64 pcs.- 7/8" or 1"x No. 14G. (40, -1) distributed as follows: 40-for 8 top and bottom metals 8-for 2 top shocks 18-for 8 ends of cor- ner metals. 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 98-for 8 top and bottom metals 8-for 2 top and bottom shocks 18-for fix- ing 8 top and bottom battens to shocks	64 pcs.- 7/8" or 1"x No. 14G. (40, -1) distributed as follows: 40-for 8 top and bottom metals 8-for 2 top shocks 18-for 8 ends of cor- ner metals. 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 98-for 8 top and bottom metals 8-for 2 top and bottom shocks 18-for fix- ing 8 top and bottom battens to shocks
	12 All	218 pcs.- 1"x No. 14G. (40, -1) distributed as follows: 72-for 4 corner metals 112-for 8 top and bottom metals 8-for 2 top and bottom shocks 24-for fix- ing 8 top and bottom battens to shocks	206 pcs.- 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 112-for 8 top and bottom metals 8-for 2 top and bottom shocks 24-for fix- ing 8 top and bottom battens to shocks	184 pcs.- 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 98-for 8 top and bottom metals 8-for 2 top and bottom shocks 18-for fix- ing 8 top and bottom battens to shocks	184 pcs.- 1"x No. 14G. (40, -1) distributed as follows: 64-for 4 corner metals 98-for 8 top and bottom metals 8-for 2 top and bottom shocks 18-for fix- ing 8 top and bottom battens to shocks

8. Maximum weight in lb. of empty chest not to be exceeded by any individual chest.

NOTE: For conversion from inches to centimetres, multiply dimensions in inches by 2.54 and for conversion from lb. to kg. multiply lb. by 0.454.

## APPENDIX A

*Timbers and treatment for plywood and battens*

1. This appendix deals with different species of timber and the treatment, if necessary, for the plywood and battens to be used for tea-chests.

## 2. TIMBER.

<i>Botanical Name</i>	<i>Trade Name</i>
1. <i>Acrocarpus fraxinifolius</i>	Mundani
2. <i>Adina cordifolia</i>	Haldu
3. <i>Albizia lebbek</i>	Kokko
4. <i>Anthocephalus cadamba</i>	Kadam*
5. <i>Artocarpus chaplasha</i>	Chaplash
6. <i>Artocarpus hirsuta</i>	Aini
7. <i>Betula</i> spp.	Birch
8. <i>Canarium</i> spp.	Dhup*
9. <i>Cedrela toona</i>	Toon
10. <i>Chukrasia tabularis</i>	Chickrassy
11. <i>Dalbergia sisso</i>	Sisso
12. <i>Dipterocarpus macrocarpus</i>	Hollong
13. <i>Dipterocarpus</i> spp.	Gurjun
14. <i>Eugenia jambolana</i>	Jaman
15. <i>Hymenodictyon excelsum</i>	Kuthan
16. <i>Lagerstroemia lanceolata</i>	Benteak
17. <i>Lephetelum wightianum</i>	Banati
18. <i>Machilus macrantha</i>	Machilus
19. <i>Mangifera indica</i>	Mango*
20. <i>Michelia champaca</i>	Champ
21. <i>Palaquium ellipticum</i> (Syn. <i>Dichopsis elliptica</i> )	Pali
22. <i>Phoebe</i> spp.	Bonsum
23. <i>Schima wallichii</i>	Chilauni
24. <i>Sideroxylon longepetiolatum</i>	Lambapatti
25. <i>Shorea assamica</i>	Makai

<i>Botanical Name</i>	<i>Trade Name</i>
26. <i>Tectona grandis</i>	Teak
27. <i>Terminalia belerica</i>	Bahera*
28. <i>Terminalia bialata</i>	White Chuglam
29. <i>Terminalia myriocarpa</i>	Hollock
30. <i>Terminalia paniculata</i>	Kindal
31. <i>Terminalia procera</i>	Badam
32. <i>Tetrameles nudiflora</i>	Maina*
33. <i>Trewia nudiflora</i>	Gutel*
34. <i>Vateria indica</i>	Vellapiney
35. <i>Zanthoxylum rhetsa</i>	Mullilam

\*See 3.1.

### 3. TREATMENT.

3.1. When timbers marked with an asterisk as well as sapwood of the remaining timbers are used in the plywood or for battens, the following treatments shall be given to the respective components:

(a) When used in Plywood - The veneers shall be treated with 1.25 per cent. hot solution of (220° F to 212° F) boric acid or 1.9 per cent. hot solution of borax for a period of 10 to 40 minutes according to the species and thickness of veneer. They shall then be dried down to a moisture content of not above 10 per cent. before bonding.

(b) When used for Battens - The battens shall be treated in a 6 per cent. zinc chloride, boric acid or borax solution by immersion for two hours in a hot solution at about 140° F followed by immersion in a cold solution for 1 hour.

## APPENDIX B

### *Test method for water resistance of bond*

#### 1. TEST PIECES.

(a) From Plywood - Test pieces 6x6 in. (15.2x15.2 cm.), shall be cut.

(b) From tea-chests which have been subjected to end-compression test or corner-drop test (Appendix E).

Two test pieces each 6 x 6 in. (15.2 x 15.2 cm.) shall be cut from sound portions of any two sides of each of the ten tested tea-chests, making in all twenty test pieces.

## 2. TEST.

The test pieces shall be soaked in water at room temperature for 7 days. The pieces shall not touch the bottom and sides of the vessel in which they are kept. The water shall be changed every day. All the pieces shall be examined at the end of 7 days.

2.1. A thin feeler gauge may be used for finding the extent of opening at the edges.

3. The average extent of delamination shall comply with 9.1 of the specification.

4. The average results for plywood and for samples from tea-chests shall be given on forms given in Appendices F and G respectively.

## APPENDIX C

### *Test methods for moisture content*

#### 1. TEST PIECES.

- (a) From plywood 2 x 2 in. (5.1 x 5.1 cm.)
- (b) From tea-chests 2 x 2 in. (5.1 x 5.1 cm.)
- (c) From battens 2 in. (5.1 cm.) long x full cross-section.

#### 2. TEST.

The test specimen shall be weighed as soon as it is cut ( $W_1$ ) and shall then be dried in an oven at a temperature of 100°C to 105°C until the weight is found to be constant ( $W_0$ ). This will take about 24 hours.

$$= \frac{W_1 - W_0}{W_0} \times 100$$

2.1. Care should be taken to prevent any possible change in moisture content between the cutting of the sample and the first weighing or between removal from the oven and the subsequent weighing.

3. The average moisture content of tested samples shall comply with 9.5 of the specification.

4. The average results for plywood and for samples from tea-chests shall be given on the forms given in Appendices F and G respectively.

#### APPENDIX D

*Test method for glue adhesion of plywood in the dry state*

1. This test is intended to show the tenacity with which the bonding material holds the veneers together.

##### 2. TEST PIECES.

(a) From Plywood- Test pieces 5 x 1 in. (12.7 x 2.54 cm.), shall be cut from plywood.

(b) From tea- chests, which have been subjected to end-compression test or corner-drop test (Appendix E). Four test pieces 5 x 1 in. (12.7 x 2.54 cm.), shall be cut from sound portions of each of the ten tested tea-chests making forty test pieces in all.

##### 3. TEST.

The test pieces shall be prepared by making saw-cuts. Each piece shall be gripped at its two ends in the jaws of a suitable testing machine and shall be pulled apart.

3.1. The grain of the outer plies shall be in the direction of the application of load.

3.2. During the tests the load shall be applied to the test pieces as uniformly as possible so as to increase at the rate of approximately 300 lb. per minute.

3.3. The moisture content of the tested specimens shall be determined as given in Appendix C and, for the purpose of Glue-adhesion test, shall be within the range of 10 to 14 per cent.

3.4. The following observations shall be made for each test piece:

- (a) Distance between the inner edges of the two saw-cuts.
- (b) Minimum load in lb. which causes failure.
- (c) Percentage of glue failure.
- (d) Moisture content.

4. The average minimum load in lb. causing failure and the average moisture content of the test pieces shall comply with figures given in 9.2 of the specification.

5. The average values for b, c and d of 3.4 for plywood and for samples from tea-chests shall be given on the forms given in Appendices F and G respectively.

## APPENDIX E

### *Test methods for end-compression and for corner-drop of tea-chests*

#### 1. TEST SAMPLES.

1.1. Ten sets of panels shall be selected at random from any consignment for making test sample tea-chests of the standard size (see 6 of specification) to be tested. Ten tea-chests shall be made with the fittings and in accordance with the nailing scheme, as detailed in Table 1.

#### 2. END-COMPRESSION TEST.

2.1. This test is intended to measure the ability of the tea-chest to withstand heavy overhead loading as in a warehouse or a ship's hold.

2.1.1. For this purpose, five of the above tea-chests shall be tested. Each tea-chest shall be filled with a

quantity of tea (or dry saw dust, see 9.3 ) appropriate to its size in accordance with established trade practice and nailed. It shall then be stood on one end and the sides marked 1, 2, 3, 4 in the clockwise order, the top face being marked 5 and the bottom 6.

2.1.2. The chest shall then be placed between the platens of a testing machine or hydraulic press with the face 6 resting on the lower platen and pressure applied slowly at a traverse rate of 0.075 in. (0.19 cm.) per minute until the maximum load is obtained and the box fails completely.

2.1.3. Two test specimens for moisture determination, each of size 2 x 2 in. (5.1 x 5.1 cm.), from different panels of each tested chest shall be cut from sound portions of the failed chests and their moisture content determined as given in Appendix C.

2.2. The following observations shall be made for each chest and the average shall be noted:

- (a) Weight in lb. of the empty chest with all nails and metal fittings.
- (b) Weight in lb. of loaded and completed chest.
- (c) Weight of contents, viz., (b-a) in lb.
- (d) Maximum crushing load in lb.
- (e) Average moisture content of the two test specimens.

2.2.1. The average of (a) shall comply with 8.1(a) and 8.2 of the specification.

2.2.2. The average for (d) shall comply with the values given in 9.3 and the averages for (e) shall comply with 9.5 of the specification.

2.2.3. The results shall be recorded on the form given in Appendix G.

### 3. PROGRESSIVE CORNER-DROP TEST.

3.1. This test is intended to measure the ability of the tea-chest to withstand rough handling.

3.1.1. For this purpose five of the above tea-chests shall be tested. Each tea-chest shall be filled and marked as in 2.1.1. This test may be easily carried out with the assistance of an over-head crane. The loaded and marked tea-chest is suspended at a pair of diagonally opposite corners from the crane hook and dropped on a cast iron plate or a heavy concrete block on each of the 8 corners in turn as given in the following order, from a height of 6 in. (15.2 cm.) to begin with, the failures if any, noted.

#### SEQUENCE OF CORNER-DROP TEST



Drop No.	Corner where faces meet
1	5-1-2
2	6-3-4
3	5-2-3
4	6-4-1
5	5-3-4
6	6-1-2
7	5-4-1
8	6-2-3

3.2. The height of drop shall be progressively increased by 6 in. (15.2 cm.) and the operation repeated every time till a height of 36 in. (91.4 cm.) is reached and thereafter by steps of 4 in. (10.2 cm.) until complete failure of the tea-chest occurs. The tea-chest shall be deemed to have completely failed when (a) the contents begin to spill freely, or (b) one edge breaks open along its entire length. The failure under (a) is a matter of some judgement on the part of the operator and the test should be done by an experienced and trained inspector.

3.3. Two test specimens for moisture determination, each of size 2 x 2 in., from different panels of each tested chest shall be cut from sound portions of the failed chests and their moisture content determined as described in Appendix C.

3.4. The following observations shall be made for each chest and the average values shall be taken:

- (a) Weight in lb. of the empty chest with all nails and metal fittings.
- (b) Weight in lb. of the loaded and completed chest.
- (c) Weight of contents, viz., (b-a) in lb.
- (d) Height of drop in inches at failure.
- (e) The average moisture content of the two test specimens.

3.4.1. The average for (a) shall comply with 8.1 and 8.2 of the specification.

3.4.2. The average for (d) and (e) shall comply with these specifications given in 9.4 and 9.5 of the specifications.

3.4.3. The results shall be recorded on the form given in Appendix G.

## APPENDIX F

*Form of report for tests on plywood*

1. Name and address of maker .....
2. Species employed for (a) outer faces of at least  
108 shocks .....  
(b) other veneers .....
3. Sizes of plywood boards for (a) top and bottom faces.....  
(b) sides .....
4. Thickness of plywood in mm. (a) nominal .....  
(b) actual average .....
5. No. of veneers in plywood .....
6. Average moisture content of plywood as determined by  
Appendix C .....
7. Average results of water resistance test as determined by  
Appendix B .....
8. Average glue adhesion strength in dry state as determined  
by Appendix D (b) ..... (c) .....
9. General remarks on compliance with Part I of the speci-  
fication .....
10. Certified that :
  - \* The plywood passed the requirement of I.S. specification  
for plywood tea-chest in all respects.
  - \* The plywood failed to conform to the specification for  
reasons given in 9 above.

Signature of Testing Officer .....

Designation .....

Name of Testing Laboratory .....

# APPENDIX G

## Form of report for tests on tea-chests

1. Name and address of maker or fabricator .....
2. Species employed for (a) outer faces..... (b) other veneers..... (c) battens.....
3. Size of tea-chests .....
4. Thickness of plywood in in. (a) nominal..... (b) actual average.....
5. No. of veneers in plywood .....
6. Tare: (a) Actual average weight of empty chest in lb. .... (b) quoted weight of empty chest in lb. ....

### 7. Results of tests:

#### IMP-COMPRESSION TEST

Chest No.	Average moisture content % for each chest	Minimum load lb.
1		
2		
3		
4		
5		
Avg.		

#### PROGRESSIVE CORNER-DIP TEST

Chest No.	Average moisture content % for each chest	Maximum dry content % in chest	Chest No.
1			1
2			2
3			3
4			4
5			5
6			6
7			7
8			8
9			9
10			10
Avg.			Avg.

#### GLUE ADHESION, DRY

Average moisture content % per chest	Adhesion lb./sq.in.	Percentage failure

#### WATER RESISTANCE

Chest No.	Average extent of delamination in all round.
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Avg.	

Avg.

Avg.

8. Report on the scheme of nailing and metal fitting as per Table I .....
9. General remarks if any on compliance with Part II of the specification .....

### 10. Certified that:

- \* Tea-chests passed the requirements of I.S. specification in all respects.
- \* Tea-chests failed to conform to the specification for the reasons given in 9.
- \* Score out either remark.

Signature of Testing Officer .....

Designation .....

Name of Testing Laboratory .....

## APPENDIX II

[Vide paragraph 4(a)]

*List of Producers, Importers, Consumers and Associations to whom the Board's questionnaires were issued indicating those who replied or submitted memoranda*

*\* Those who replied.*

## PRODUCERS:-

- \*1. Rohtas Industries Ltd., Dalmianagar.
- \*2. East India Plywood Co. Ltd., Cooch Bihar.
3. Union Plywood Products, 1 Royal Exchange Place, P.O. Box 2267, Calcutta.
- \*4. Bose Wood Works Ltd., 224/5, Rash Behari Avenue, Calcutta 19.
- \*5. Bengal Bobbin & Plywood Co. Ltd., 44/46, Canning Street, P.O. Box 2375, Calcutta.
- \*6. Madarihah Veneer & Saw Mills, P-12, Mission Row Extension, Calcutta.
- \*7. Bengal Veneer & Saw Mills, Mission Court, P-12, Mission Row Extension, P.B. No. 632, Calcutta.
8. The New India Tea Co. Ltd., Comilla (Bengal).
- \*9. The Assam Railways & Trading Co. Ltd., Margherita P.O. (Upper Assam).
- \*10. Assam Saw Mills & Timber Co. Ltd., Chartered Bank Buildings, P.Box 46, Calcutta.
11. The Indian Plywood Mfg. Co. Ltd., Killick Building, Home Street, Bombay.
- \*12. The Karnatak Industrial & Plywood Co. Ltd., C/o. Sunderdas Saw Mills, Opp. Reay Road Station, Bombay No. 10.
- \*13. Mysore Plywood Corporation Ltd., P.O. Box No. 89, Bangalore 1.
- \*14. The Coorg Timber & Plywood Corporation Ltd., Hunsur, Mysore.
- \*15. The Malabar Plywood Works, Feroke (Malabar).
- \*16. The Western India Plywood Ltd., P.O. Balliapattam (Malabar), Railway Station *Azhikkal*.
- \*17. Hindustan Plywoods, P.O. Box 11, Cannanore (North Malabar).

18. The Palaniappa Match Works, Alattur (Via Palghat).
19. The Calicut Timber & Plywood Co.,  
Feroke (South Malabar).
- \*20. The Standard Furniture Co. Ltd.,  
Kallai (South Malabar).
- \*21. Travancore Plywood Industries, Trivandrum.
- \*22. Phoenix Plywood, Kottayam (South India).
- \*23. South India Plywood Industries, Market Landing,  
Kottayam, Travancore (South India).
24. United Timber & Plywood Works Ltd.,  
Tamalpur (Hardwar).
25. Varat Plywood, 86-B, Netaji Subhas Road, Calcutta.
- \*26. The Great Indian Plywood Mfg. Co.,  
1/18, Park-para Row, Belgachia, P.O. Calcutta.
- \*27. Assam Bengal Veneer Industries, 9, Clive Row,  
Calcutta 1.
- \*28. Kasipur Plywood Co., 2, Dalhousie Square (East),  
Calcutta 1.
29. Mr. Hemraj, Block No. 54, Quarter No. 33, Pusa Road,  
New Delhi.
- \*30. S. Mukherjee Esq., 29, Parkside Road, Calcutta 26.
- \*31. Union Plywood Ltd., 1, Commercial Buildings,  
Off 102-B, Netaji Subhas Road, Calcutta.
- \*32. The Bharat Plywood & Timber Products Ltd.,  
Baliapatam (North Malabar, South India).
- \*33. The Surma Match & Industries Ltd.,  
Karimganj (Cachar).
- \*34. The Eastern Plywood Co. Ltd., Feroke (South Malabar)
35. Malabar Produce Marketing Co. Ltd.,  
Mattancherry, P.O. Cochin (South India).
36. The Gopal Plywood Industries,  
Madan Mahal, Jubbulpore.
- \*37. The Swaraj Plywood Works, Kottayam.
- \*38. The Kerala Plywood Co. Ltd.,  
P.O. Kallai (South Malabar).
39. Tegpara Timber & Veneer Mills Ltd.,  
P.O. & T.O. Jeypore, Railway Station Naharkatiya,  
Assam.
40. Plywood Products Ltd., Sitapore (U.P.).

## ASSOCIATIONS:

- \*1. Indian Plywood Manufacturers' Association,  
4, Clive Ghat Street, Calcutta 1.
- \*2. All India Plywood Manufacturers' Association,  
23-B, Clive Street, Calcutta.
- \*3. Indigenous Plywood Manufacturers' Association,  
19, Strand Road, Calcutta.
- \*4. The West Coast Industrialists' Association (Regd.),  
Malabar & Pioneer Hosiery Buildings,  
Chalapuram P.O., Calicut.
- \*5. South Indian Plywood Manufacturers' Association,  
C/o. The Malabar Plywood Works,  
Feroke (South Malabar).
- 6. Eastern India Teacheest and Plywood Manufacturers'  
Association, Chartered Bank Building, Calcutta.

## OFFICIALS:

- \*1. Tea Controller for India, 1, Council House Street,  
Calcutta.
- \*2. Chairman, Central Tea Board, 31, Netaji Subhas Road,  
Calcutta.

## IMPORTERS:

- \*1. G. L. Kilikar, Post Box No. 7, Mattancherry P.O.,  
(Cochin - South India).
- 2. Williamson Magor & Co., Post Office Box No. 177,  
4, Mangoe Lane, Calcutta.
- \*3. Venesta Limited, 4, Mangoe Lane, Calcutta.
- \*4. McLeod & Co. Ltd., 3, Netaji Subhas Road, Calcutta.
- \*5. James Warren & Co. Ltd., Post Office Box No. 154,  
18, Netaji Subhas Road, Calcutta.
- \*6. Davenport & Co. Ltd., Post Office Box No. 184,  
6, Church Lane, Calcutta.
- \*7. The Acme Tea-Chest Co. Ltd., 2, Netaji Subhas Road,  
Calcutta.
- \*8. Gladstone Iyall & Co. Ltd., 4, Fairlie Place,  
Calcutta.
- 9. S. D. Garbis & Co., 83-A, Elliot Road, Calcutta.
- 10. Chimanlal Desai & Co., P.O. Box No. 572,  
54, Bentinck Street, Calcutta.

- \*11. The English & Scottish Joint Co-operative Wholesale Society Ltd., P.O. Box No. 59, Calcutta.
- 12. James Finlay & Co. Ltd., P.O. Box 209, 2, Netaji Subhas Road, Calcutta.
- 13. Ghose & Sons, Mission Court, P-12, Mission Row Extension, P.B. No. 632, Calcutta.
- 14. Bengal Agency & Stores Syndicate, Mission Court, P-12, Mission Row Extension, P.B. No. 632, Calcutta.
- \*15. M/s. Brooke Bond (India) Ltd., Brooke House, P.O. Box No. 187, Calcutta.
- 16. M/s. Lipton Ltd., P.O. Box No. 41, 9-13, Western Street, Calcutta.
- 17. M/s. Foreign Agencies Ltd., 6 & 7, Clive Street, Calcutta.

#### CONSUMERS:

- \*1. United Planters' Association of Southern India, "Glen View", Coonoor, Nilgris.
- \*2. Kothari & Sons, Post Box No. 267, "Oriental Buildings", Armenian Street, Madras.
- \*3. The Central Travancore Planters' Association, Peermade & Vandiperyar, Travancore (South India).
- \*4. Indian Tea Association, Royal Exchange, Post Box No. 280, Calcutta.
- \*5. Kannan Devan Planters' Association, Madupatty Estate, Mattupatti P.O., Travancore (South India).
- \*6. Nuddea Tea Co. Ltd., Totapara Tea Estate, P.O. & T.O. Banarkat, Dist. Jalpaiguri.
- 7. M/s. C. Lazarus & Co. Ltd., 21, Convent Road, Entally, Calcutta.
- \*8. Malayalam Plantations Ltd., Quilon (South India).
- \*9. Controller of Stores, G.I.P. Railway, Gipstore Lane, Lower Parel, Bombay 13.
- 10 The Mysore Planters' Association, Chikmagalur, Kadur District.
- \*11. Sunderdas Saw Mills, Opp. Reay Road Station, Bombay 10.
- 12. The Scindia Steam Navigation Co. Ltd., "Scindia House", Dougall Road, Ballard Estate, Bombay 1.

- \*13. General Motors (India) Ltd., Post Box No. 39,  
Bombay No. 1.
- 14. Terai Planters' Association, T.E. Gaya Tanga,  
P.O. Baghdogra.
- 15. M/s. Simpson & Co. Ltd., 202/203, Mount Road,  
P.O. Box No. 303, Madras.
- 16. Controller of Stores, B.B. & C.I. Railway,  
Mahalaxmi, Bombay.
- 17. The Buckingham & Carnatic Co. Ltd.,  
P.B. No. 66, Madras.
- 18. Tata Air Craft Ltd., Bombay House, Bruce Street,  
Bombay.
- \*19. Davenport & Co. Ltd., P.O. Box No. 184,  
6, Church Lane, Calcutta 1.
- 20. Williamson Magor & Co., 4, Mangoe Lane, Calcutta.
- \*21. Planters' Union, 162, Bow Bazar Street, Calcutta 12.
- \*22. James Finlay & Co. Ltd., P.O. Box 209,  
2, Netaji Subhas Road, Calcutta 1.
- 23. Air India Limited, New India Assurance Building,  
Mahatma Gandhi Road, Bombay 1.

### APPENDIX III

[Vide Paragraph 4(c)]

*Statement showing the dates of visits to the plywood and tea chest factories by the President, Members and Officers of the Board.*

Name and location of the Factory.	Date of visit	By whom visited
1. Plywood Products, Sitapur.	26-9-1949	Mr. Kapur.
*2. The Standard Furniture Co. Ltd., S. Malabar.	27-9-1949 to 30-9-1949	Mr. Sundaram.
*3. The Assam Railways & Trading Co. Ltd., Margherita.	7-10-1949 to 10-10-1949	Mr. Kapur. Mr. Sundaram.
4. The Bengal Bobbin & Plywood Co. Ltd., Calcutta.	14-10-1949	Mr. Kapur. Mr. Sundaram.

Name and location of the Factory.	Date of visit.	By whom visited.
5. Bose Wood Works Ltd., Calcutta.	14-10-1949	Mr. Kapur.
6. Kasipur Plywood Co., Calcutta.	17-10-1949	Mr. Kapur.
*7. Varat Plywood Factory, Calcutta.	17-10-1949	Mr. Sundaram. Mr. Kapur.
8. Standard Furniture Co. Ltd., Kallai.	31-1-1950	Dr. Naidu.
9. Kerala Plywood Co., Kallai.	1-2-1950	Dr. Naidu.
10. Malabar Plywood Works, Feroke.	11-2-1950	Dr. Naidu.
11. Varat Plywood Factory, Calcutta.	3-3-1950	President.

\*Costed.

#### APPENDIX IV [vide paragraph 4(c)]

*List of persons who attended the Public inquiry into the Plywood & Tea-chests industry on 21st, 22nd & 23rd February, 1950.*

#### PRODUCERS:

1. Mr. N.N. Bose, Mr. B.M. Khaitan.	} Representing	The Plywood Manufacturers' Association of India, P-1, Mission Row Extension, Calcutta 1.
2. Mr. S. Chatterjee.	"	Bengal Bobbin & Plywood Co. Ltd., 44-46, Canning Street, Post Box 2375, Calcutta 1.
3. Mr. G. Eyre Higgins.	"	The Assam Railways & Trading Co. Ltd., Margherita.
4. Mr. M.S.V. Raghavan.	"	South Indian Plywood Manufacturers' Association, C/o. Malabar Plywood Works, Feroke (S. Malabar).

5. Mr. V.J. Nedungadi.	Representing	The Standard Furniture Co. Ltd., Kallai, Malabar.
6. Mr. M. Kleinberg.	}	The Indian Plywood Mfg. Co. Ltd., 9, Wallace Street, Post Box 1175, Fort, Bombay.
Mr. H.K. Vissanji.		
7. Mr. A.K. Kaderkutti.	"	The Western India Plywoods Ltd., P.O. Ballipatam (Ry. St. Azhikkal), Malabar.
8. Mr. Narayana Menon.	"	Saw Mills & Industries Ltd., Trichur.
9. Mr. L.P. Horn.	"	Eastern India Teacheat & Plywood Manufacturers' Association, Chartered Bank Building, Calcutta 1.
10. Mr. Dwarkadas Purshottam.	"	Sunderdas Saw Mills, Opp. Reay Road Station, Bombay 10.

## CONSUMERS:

1. Mr. M.R. Watkins.	"	Indian Tea Association, Royal Exchange, P.Box 280, Calcutta 1.
2. Mr. A.R. Widenman.	"	General Motors India Ltd., Bombay 1.
3. Mr. M. Matcher.	"	Controller of Stores, G.I.P. Railway, Gipstore Lane, Lower Parel, Bombay 12.

## IMPORTERS:

1. Mr. J.T. Ewing.	"	Venesta Limited, Calcutta. McLeod & Co. Ltd., Calcutta. James Warren & Co. Ltd. Calcutta. Davenport & Co. Ltd., Calcutta. The Acme Teacheat Co., Ltd., Calcutta.
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2. Mr. K. Chowdhary.      Representing      Teachest & Plywood  
Traders Association,  
P-11, Mission Row  
Extension, Calcutta.

## OFFICIALS.

1. Shri J. Banerji, I.F.S.      "      Inspector-General of  
Forests, Government of  
India, Ministry of Agri-  
culture, New Delhi.
2. Shri Jagadamba Prasad.      "      Development Officer,  
(Timber), D.G.I. & S.,  
New Delhi.



**APPENDIX V**  
(Vide paragraph 13)

*Statement showing C.I.F. prices, customs duty, clearing charges and landed costs of imported plywood and tea chests*

Source of information or Name of the Importer.	Origin or Import	Date of Import	Type & specification	Unit	C.I.F. Rs. as. ps.	Customs duty Rs. as. ps.	Clearing charges Rs. as. ps.	Landed cost Rs. as. ps.	REMARKS
1	2	3	4	5	6	7	8	9	10
1. The U.S. Exportum (Agency) Ltd., 34, Chittaranjan Avenue, Calcutta.	U.S.A.	19-2-49	Shooks 19"x19"x24"			(@ 30% ad valorem).	-	6 2 2	
Do.	Finland	26-4-49	-	-	-	-	-	5 13 8	
Do.	Japan	Do.	-	-	-	-	-	4 5 0	
Do.	Do.	Do.	-	-	-	-	-	3 5 0	
2. The Acme Teacheat Co. Ltd., 2, Netaji Subhas Road, Calcutta.	Finland	1949	12 battens type per set of 6 chest panel panels.	4 8 11	1 6 0	0 6 0	6 4 11		
3. Davenport & Co. Ltd., 6, Churchgate Lane, Calcutta.	Finland	-	Do.	4 8 11	1 6 0	0 6 0	6 4 11		
4. The English & Scottish Joint Co-operative Wholesale Society Ltd., P.B. No. 39, Calcutt.	Finland	May 1949	Do.	4 10 6	1 6 4	0 0 8	6 1 6		
5. Brooke Bond(India)Ltd., Calcutta.	Finland	20-5-49	Birch Plywood Teacheat panels.	4 2 6	-	-	5 7 0		
6. James Warren Co. Ltd., 18, Netaji Subhas Road, Calcutta.	Finland	2-6-49	Do.	per set of 6 panels	4 8 11	1 6 0	0 6 11	6 4 11	
7. Venesta Ltd., 4, Lane, Calcutta.	Finland	-	Birch Plywood Teacheat panels.	Do.	4 8 11	1 5 11	0 6 1	6 4 11	

APPENDIX V (Contd.)

1	2	3	4	5	6	7	8	9	10							
8.	Gladstone Lyall & Co. Ltd., 4, Fairlie Place, Calcutta.	1949	19"x19"x24" 12 battion type panels	Per set 4 of 6	4	8	11	1	6	0	0	6	0	6	4	11
9.	McLeod & Co. Ltd., 3, Netaji Subhas Road, Calcutta.	-	Do.	Do.	4	8	11	1	6	0	0	6	0	6	4	11
10.	Mr. J. T. Boring	Latest	Do.	Do.	4	11	0	-	-	-	-	-	-	-	-	-
11.	Collector of Customs, Calcutta.	U.S.A. or Finland 1949	19"x19"x24"	Do.	4	8	11	1	5	11	0	6	1	6	4	11
12.	Do.	Japan 1949	19"x19"x24" (Birch)	Do.	4	2	0	1	3	10	0	3	4	6	3	2
13.	Do.	Do. 1949	Do. (Beach)	Do.	3	5	0	0	15	11	0	2	7	4	7	6
14.	Do.	Do. 1949	19"x19"x24" Collapsible veneer 8 bat- tens type with metal fittings.	Do.	5	14	0	1	12	2	0	4	8	7	14	10
15.	Do.	Do. 1949	72"x36" 3 ply. Per 3/16" 1st quality.	Per 100 sq. ft.	23	0	0	6	14	5	1	3	0	31	1	5
			2nd quality	Do.	19	8	0	5	13	7	1	0	0	26	5	7
		Do.	3rd quality	Do.	15	0	0	4	8	0	0	12	0	20	4	0
		-	B.B. 3 mm.	Do.	24	14	0	6	14	0	1	4	0	33	0	0
16.	Collector of Customs, Bombay.	Finland	B.B. 4 mm.	Do.	28	10	0	8	2	0	1	4	0	38	0	0
		Do.	B.B. 5 mm.	Do.	35	2	0	9	10	0	1	4	0	46	0	0
		Do.	B.B. 6 mm.	Do.	43	7	0	12	5	0	1	4	0	57	0	0
		Do.	B.B. 8 mm.	Do.	54	6	0	15	6	0	1	4	0	71	0	0

\*Figures supplied  
by Mr. Boring at  
the time of  
public inquiry.

## APPENDIX VI

(Vide paragraph 18)

*Forms for the submission of periodical returns to the  
Tariff Board.*

The enclosed Forms I to VIII are designed with the object of enabling:-

(i) the industry to control their operations and costs in as simple a manner as possible;

(ii) the Forest Department to plan the supply of timber to the industry; and

(iii) the Development Department of Timber Directorate to watch the progress of the industry by studying the various handicaps encountered, and how to overcome them effectively. The working of these forms will be effective only in cases where there is a good system of accounting for raw materials, stores, labour and manufacturing expenses.

The following explanatory remarks are offered in respect of the various forms attached herewith.

FORM I: This calls for "general information" pertaining to the factory.

FORM II: This deals with production equipment and capacity. The object of this form is to ascertain the "maximum" capacity of each unit to produce plywood, the "operating" capacity after making adjustments for normal repairs and other minor normal working interruptions etc. The relation of actual sales to the actual capacity worked called for in this form should show the "practical" capacity. The "practical" capacity is, in other words, the "operating" capacity adjusted to the actual sales demand over a fairly long period. In the case of a new firm or the case of a factory, where no past statistics were already available,

the figures will have to be collected and studied over a fairly long period. As pointed out in the footnote of this form, it is desired that, as far as possible, production forming substantial portion of the total should only be taken into account. When stating the capacity of the plant it is the intention that this should be expressed in terms of the most representative size such as 3 ply 3/16" or 3 ply 4 mm. or 3 ply 4½ mm., as the case may be. Incidentally, details of capacity called for each department will show the "bottle-necks" existing in each unit.

Once Forms I & II are completed and submitted, there is no necessity to fill up these forms a second time unless a substantial change has occurred in the data called for.

FORMS III & III-A: The details called for on these forms should enable the Forest Department to have long-term planning in respect of the supplies of timber and at the same time watch the quality of each timber available at each unit manufacturing plywood. This form will be filled up from data collected from Form III-A, which shows the daily record of timber by kind.

FORM III-B: The object of this form is to enable the manufacturers and the Forest Department to know the extent to which the yield or the conversion factor can be controlled. Unless it is very inconvenient to the manufacturers, a minimum number of experiments in a month or a quarter of a year should be prescribed so that the yield or conversion factor for each kind of timber may be examined by actual experiments conducted on different species of timber and then compared with the "overall" actual yield for each group of species during a particular period. If facilities are available for measuring output at each stage of process, it would be of great value to the industry and the Forest Department to have these details. Otherwise, a comparison of the "overall" yield with the actual experiments conducted would be a simple method of controlling and watching this factor.

In this connection, as already indicated in this form, the timber contents should be calculated on the same lines as those adopted by the Forest Department for paying the royalties on timber or any other method suggested by the Forest Department. To make matters simple, adjustment for "core" loss is avoided in calculating the yield or conversion ratio.

FORM IV: This is self-explanatory and should enable the Development Department in supplying the necessary chemicals such as Casein etc., for this industry based on actual consumption in each unit.

FORM V: The object of this form is to have a broad analysis of the labour cost for making plywood and segregating it into "direct" and "indirect" labour costs.

FORM VI: A keen desire to have some simple system of planning the expenditure and controlling the same as far as possible is the object in designing this form. The manufacturing expenses referred to in this form are those allocable to the plywood section in the case of a firm engaged on various manufacturing operations. In the case of a firm solely engaged in plywood, the matter is simple. In arriving at the estimates for the period (to be chosen according to the present convenience of each unit) should be based on the operating capacity of the plant to manufacture plywood. The object of basing the estimates on the operating capacity is to enable the ascertainment of the expenses incurred in respect of "idle plant" due to lack of orders or other causes. Where the actual capacity worked varies from that estimated, necessary adjustments will have to be made to draw correct information. The variation in cost will represent the degree of measure of control exercised in each unit. Idle plant expense can then be analysed as to factors which can be controlled and which cannot be controlled. The "royalties" referred to here are assumed to be those paid in respect of production, whilst "laboratory and research" is entirely assumed to be of a routine nature. As packing charge is practically very small in this industry,

it has been included in the manufacturing expense. Sundry credits that may be available may be shown as a deduction from the "general charges" which will figure in this statement as "net".

FORM VII: This will show the loss in output on account of the various handicaps indicated therein. This again pre-supposes that the output is calculated in terms of the most representative size.

FORM VIII: This is divided into three sections viz.,

- (i) to show the cost of plywood made;
- (ii) to show the cost of plywood sold; and
- (iii) to show the profit from operations.

No special comments are called for and the data to be furnished is self-explanatory.

# FORM I

## PLYWOOD AND TEA-CHEST INDUSTRY

### GENERAL

1. Name of Factory:
2. Address:                      Head Office:  
    Factory:
3. Nature of constitution:                      \*Proprietary/Partnership/  
    Private Ltd./Public Ltd.
4. Date of incorporation:
5. Date of commencement of P.W. Manufacture:
6. Names and addresses of Managing Agents:
7. Books of accounts maintained in:                      \*Indian/English System
8. Name and address of Auditors:

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\*Strike out whichever is not applicable.

9. Financial accounts made upto end of: \*6 months/12 months  
ended 19

10. Name of costing system in use:

11. Nature of business transacted: \*\*

12. Nature of location of the plant:

13. Nearness or otherwise to source of timber:

(a) Species used in their respective proportions.

14. Transport facilities for timber: .

15. How timber is obtained:

16. Suitability of timber to plywood & tea-chest:

17. Nature of selling market:

18. Transport facilities for selling:

19. Original value of Block Capital employed: Land Rs.

Buildings:

Plant & Machinery:

Others: \_\_\_\_\_

Total Rs. \_\_\_\_\_

20. (a) No. of men employed:

(b) No. of women employed:

\* Strike out whichever is not applicable.

\*\* Broad details of all kinds of activities by production departments.

## FORM II

PLYWOOD AND TEA-CHEST INDUSTRY  
PRODUCTION EQUIPMENT AND CAPACITY

Name of firm:

1. Types of plywood made: Description/size % of total production.

(a) 3 ply 3/16"

(b)

(c)

(d) \*\* Miscellaneous

TOTAL

100

2. Sizes of Tea chests (a) 24" x 19" x 19"

made: (b)

(c)

(d)

(e)

(f) \*\* Miscellaneous

TOTAL

100

3. Capacity of plant in sq.ft. of plywood of size.....  
per \*single shifts of .....hrs. each.  
double  
treble

S.No.	Department	Brief description of Machinery	Nos. installed	Nos. worked	Capacity in sq.ft.		Remarks
					Maximum	Operating %	
1.	Peelers						
2.	Dryers						
3.	Glue Spreaders						
4.	Presses etc.						
	All Departments						

\* Strike out whichever is inapplicable.

\*\* Comprising less than 10% of total production of each size.

4. Total capacity for a year (a) of ... shifts of ... hrs. each =  
sq.ft.

(b) of ... days of ..... hrs. each =  
sq.ft.

5. Actual capacity worked in sq.ft.

6. Actual sales (including tea-chests) sq.ft.

7. Relation (6)/(5) =

FORM III

PLYWOOD AND TEA-CHEST INDUSTRY

Statement showing total timber required, consumed and yield  
of plywood of size ..... during the \*month/3 months  
ended ..... 195 .

Name of firm:

Section A - actuals:

S. No.	DETAILS	Hollong	Hollock	Mekai	All Varieties
1.	Total quantity of plywood made Sq.ft.....				
2.	Total quantity of timber used C.ft.....				
3.	Yield per C.ft. of timber used (1)/(2) - Sq.ft...				
4.	Cost per C.ft. of timber used - Rs.....				
5.	Total value of timber used - Rs.....				
6.	Timber cost per Sq.ft. of p.w. (5)/(1) Rs.....				

\*Strike out whichever is not applicable.

---

**Section B - Estimates for the \*month/3 months ended ....195**

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1. Total plywood to be made - Sq.ft.
  2. Yield anticipated per C.ft. - Sq.ft.
  3. Quantity of timber required - C.ft.
  4. Rate of timber per C.ft. - Rs.
  5. Total value of timber required - Rs.
- 

N.B.- (i) This form to be completed and returned on the 10th of each month following the month to which the above report relates.

(ii) Detailed records of timber received, used and on hand should be readily available by using Form III-A

(iii) Production of plywood to be in terms of most representative size.

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\* Strike out whichever is not applicable.



\* Strike out whichever is not applicable.

**FORM III-B**  
**PLYWOOD AND TEA-CHEST INDUSTRY**

Statement showing wastage incurred and yield obtained per  
 c.ft. of timber during the . . . . . 195 .

Name of firm:

1. Date of Experiment:
2. Serial No. of Experiment:
3. Species of timber used:
4. Approximate age of timber  
 used in months (time between  
 felling and peeling,  
 and method of storing):
5. Suitability to peeling:
6. Any special features:
7. Dimensions of log:    mid-girth:  
                                  under bark (G)  
                                  Length:  
                                  in ft.  
                                  Vol. in c.ft:  $(\frac{G^2}{4}) \times b$

(both G and b in ft. to 2 places of decimals)

8. Size of plywood made:

9.

Stage of process	c.ft.	%	Waste in c.ft.	%
(a) Green log		100		
(b) After debarking and cutting				
(c) After peeling (wet veneer)				
(d) After drying				
(e) After sorting veneer				
(f) After trimming etc.				
(g) Net yield and waste				

10. Actuals during the . . . . . of 195 .

(i) Yield of plywood	per c.ft. of timber =	Sq.ft.
(ii) Wastage	per c.ft. of timber =	%

- N.B.— (i) This form should be sent duly completed and returned on the 10th of each month following the month to which the above report relates.
- (ii) To simplify matters, yield figures to be worked without adjustment for core losses.
- (iii) In calculating the yield, the net useable plywood including that salvaged from rejected sheets should be taken into account.

**FORM IV**  
**PLYWOOD AND TEA-CHEST INDUSTRY**

Statement showing cost of glue materials consumed during the  
 \*month/three months ended.....195 .

Total quantity of Plywood made in sq. ft.

Name of firm:

Sl. No.	Description of materials.	Quan- tities. lbs.	Rate per lb. Rs.	Value Rs.	Consumption per 1000 sq. ft.		Remarks
					Quan- tities. lbs.	Cost Rs.	

1. Casein . . . . .
2. Lime . . . . .
3. . . . .
4. . . . .
5. . . . .
6. . . . .
7. . . . .
8. . . . .
9. . . . .
10. . . . .



- N.B. - (i) Rates may for convenience be adopted upto two places of decimals of a rupee.  
 (ii) Value need be only up to the nearest rupee.  
 (iii) Consumption in quantities and cost to be worked to three places of decimals.  
 (iv) Details of rate paid for Casein etc.

Chemical Source of supply Unit Rate Freight etc. Total cost.

- 1.
- 2.
- 3.

\*Strike out whichever is not applicable.

## FORM V

## PLYWOOD AND TEA-CHEST INDUSTRY

Statement showing labour cost incurred for the  
\*month/three months ended \_\_\_\_\_ 195 .

Name of firm:

1. Actual quantity of plywood made . . . . sq.ft.
2. Proportion of operating capacity worked . . %
3. No. of \*shifts/days worked of hrs. each . .
4. Production per \*shift/day (1)/(3) . . . . sq.ft.:
5. Analysis of pay roll . . . . .

Sl. No.	Dept.	No. of men worked	No. of man days worked	Total wages paid	Basic wages	Dearness allowan- ces.	Other allowan- ces.	Remarks
			(ii)	Rs.	Rs.	Rs.	Rs.	
(i)	Peeling . . . .							
(ii)	Drying . . . .							
(iii)	Glueing . . . .							
(iv)	Pressing . . . .							
(v)	Trimming etc. .							
(vi)								
(vii)								
(viii)	Total direct labour. . . .							
(ix)	Total indirect labour. . . .							
(x)	Total labour cost. . . . .							

6. Relation of (ix)/(viii). . . . . %
7. No. of man days (direct) worked per sq.ft.  
(viii) (a)/(1) . . . . .
8. Labour (direct) cost per man day: Basic Rs.  
D.A. Rs.  
Other allowances Rs.  
Total Rs.
9. Direct labour cost per sq.ft. (7)x(8) Rs.
10. Indirect labour cost per sq.ft. (9)x(6) Rs.
11. Total labour cost per sq.ft. (9)+(10) Rs.

\*Strike out whichever is not applicable.

## FORM VI

## PLYWOOD AND TEA-CHEST INDUSTRY

Manufacturing Expense report for the "Plywood Section" only  
for the \*month/three months ended \_\_\_\_\_ 195

Name of firm: \_\_\_\_\_

Sl. No.	Items of expenses	Estimates			Actuals			Variation		
		Total	Fixed	Vari- able.	Total	Fixed	Vari- able.	Total	Fixed	Vari- able.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.

(2)

1. Power
2. Coal and fuel
3. Indirect labour
4. Repairs and maintenance.
5. Consumable stores
6. Establishment
7. Depreciation
8. Insurance
9. Stationery, printing post.
10. Rent, rates & taxes
11. Directors' & Auditors' fees.
12. Managing Agency charges.
13. Water, lighting
14. Royalties
15. Medical expenses
16. General charges
17. Laboratory and Research.
18. Packing
19. Total



- (a) Total operating capacity of plant for plywood : sq.ft.
- (b) Actual capacity worked: : : : : : "
- (c) Capacity unused or idle: : : : : : "
- (d) Relation of (c)/(a): : : : : : %
- (e) Idle plant expense -  $19(z) \times (d) =$  Rs.
- (f) Manufacturing expense per sq.ft. Estimated Rs.  
(excluding idle plant expense). Actual:  
Variation:

N.B.-Estimates for the period are to be based on the plant working to full operating capacity.

\*Strike out whichever is not applicable.

## FORM VII

## PLYWOOD AND TEA-CHEST INDUSTRY

Daily report of plant idle time and consequent loss in output.

Name of firm: \_\_\_\_\_

Month & date.	Analysis of idle time of plant.							Total	
	No. orders	No. timber	No. casein	No. power	Break down	Stri- kes etc.	No. Trans port.	Miscel- laneous.	Hours Sq.ft.
	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	Hrs.	



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Summary for the period of 195 . Hrs. sq.ft.

1. No. orders.
2. No. materials.
3. No. power.
4. Break-down.
5. Strikes.
6. No. transport.
7. Miscellaneous.

Total: \_\_\_\_\_

## FORM VIII

## PLYWOOD AND TEA-CHEST INDUSTRY

Statement showing Profit and Loss made on plywood during the  
\*month/three months ended 195

Name of firm:

Total output in sq.ft.

	Total Rs.	Per sq. ft. Rs.
<b>1. Cost of plywood made:</b>		
(a) Timber consumed . . . . .		
(b) Glue materials. . . . .		
(c) Others . . . . .		
Total . . . . .	_____	_____
(d) Labour (direct) . . . . .		
(e) Manufacturing expenses - Variable fixed . . . . .	_____	_____
(f) Total cost of production . . . . .	_____	_____
<b>2. Cost of plywood sold:</b>		
(a) Opening stock of plywood . . . . .		
(b) Add/cost of P.W. made-1(f) . . . . .	_____	_____
(c) Total. . . . .	_____	_____
(d) Less closing stock of plywood. . . . .	_____	_____
(e) Cost of plywood sold. . . . .	_____	_____
(f) Cost per sq. ft. of plywood sold: Rs. . . . .		_____
<b>3. Profit on operations:</b>		
(a) Gross sales of plywood . . . . .	Rs.	
(b) Less return and allowances. . . . .	Rs.	_____
(c) Net sales . . . . .	Rs.	_____
(d) Less selling & distribution expenses . . . . .	Rs.	_____
(e) Selling price for plywood sold . . . . .	Rs.	_____
(f) Less cost of plywood sold - 2(e) . . . . .	Rs.	_____
(g) Net profit on operation. . . . .	Rs.	_____
(h) Net profit . . . . .	Rs.	_____
(i) per sq. ft. : . . . . .	Rs.	
(ii) on cost of production: . . . . .	%	
(iii) on sales: . . . . .	%	

\*Strike out whichever is not applicable.